WEST MARKETING ISSUE
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Anhydrous Sales Up In First 7 Months, AAI Survey Shows

Distributors Report Increase of 33% Over Similar 1956 Period

MEMPHIS—Sales of anhydrous ammonia for direct application gained 32.8% in the first seven months of this year over the sales in a comparable period in 1956, according to a survey by the Agricultural Ammonia Institute.

This estimate is based on returns from 195 anhydrous distributors in 29 states, who reported a total of 118,141 tons of ammonia sold, compared with 88,982 tons in the corresponding period last year.

Results of the survey were published in the September-October issue of Agricultural Ammonia News, official magazine of the Institute.

Of those responding to the survey, 140 were members of the Institute and 55 were non-members. Members reported sales for the 1957 period of 102,939 tons, compared with 76,875 tons in the 1956 period, while non-members had sales of 15,204 tons, up from 12,107 tons.

The survey indicated that approximately 38% of the January-July, 1957 sales were made for pre-plant and 32% for sidedressing. The Institute said that this was a reversal of past experience and was primarily due to heavy rainfall during the pre-plant period.

Regarding prospects for fall application sales, 55 Institute members said they were fair, 52 said poor, 22 said good and six said excellent. Among non-members 21 said poor, 19 said fair, and nine said good.

Among reasons given in the survey for increased sales were weather, increased sales promotion, favorable results in past seasons, test plot results, new users and territories and increased service to customers.

Fertilizer and Soil Conferences Set for Atlanta

WASHINGTON—Soil scientists and fertilizer industry representatives will meet in Atlanta, Ga., at the end of October for the annual Southeastern Fertilizer Conference and the annual Southern Soil Fertility Conference. Both sessions are slated for the Dinkler-Plaza Hotel.

The Southeastern Conference, sponsored by the National Plant Food Institute, is intended primarily for NPFI members, although invitations have been extended to U.S. Department of Agriculture and college personnel. It will be held on Oct. 31.

The Soil Fertility Conference, under joint sponsorship of the Southern Regional Soil Research Committee and NPFI, will follow on Nov. 1, and is open to Institute members as well as college and U.S. Department of Agriculture representatives.

A large part of the southeastern industry session will be devoted to a discussion of the subject of what influences farmers in the Southeast to purchase fertilizer. This discussion will be based on a study being conducted for NPFI by National Analysts, Inc., of Philadelphia.

M. S. Williams, NPFI chief agricultural economist, will report on the Philadelphia firm's study. This will be followed by an appraisal of factors influencing the use of fertilizer in the Southeast by H. L. Dunton, head, department of agronomy, Virginia Poly-

(Continued on page 20)

Phillips Sets New Ammonium Nitrate Prices

BARTLESVILLE, OKLA.—Phillips Petroleum Co. has announced that its price for ammonium nitrate for the October-December period will be $68 a ton, f.o.b. Etter, Texas. The price for January through June, 1958 will be $72 a ton.

A number of price changes by other firms was noted on page 1 of the Sept. 16 issue of Croplife.

Action to Stop $300 Million Weed Loss Stirred at Series Of Meetings in California

SAN FRANCISCO—Weeds cause a $300 million loss to California's economy each year, S. V. Christierson, California State Chamber of Commerce board member, said at a recent weed control symposium in San Jose.

Four other weed control symposia were held recently in Los Angeles, Fresno, Bakersfield and Sacramento to consider local weed problems, their solutions and coordination of local weed control programs. Each symposium was composed of a 10 member panel whose findings will be presented to the state chamber's statewide weed committee headed by J. Earl Coke, formerly assistant secretary of agriculture under Ezra Taft Benson. This committee works toward policies whereby the state's weed problem can be reduced.

"It was the consensus at all of the meetings that there is apathy towards the need for weed control, and that research is not consistent with the need. All five groups recommended the establishment of local weed control committees or weed abatement

(Continued on page 20)

USDA Reports Presence Of White Leaf Disease In Florida Rice Fields

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—The U.S. Department of Agriculture last week reported the presence of a virus disease in rice in Florida which, officials said, is virus in its concept and which now defies identification of method of transmission.

USDA officials said that the presence of this rice disease is of major importance since it has exhibited ability to curb crop production of rice in Cuba, for example, by as much as 20% of the crop.

They said that their present diagnosis shows that the transmission of the white leaf disease occurs through vectors or leafhoppers but they do not know the answer to the problem.

The white leaf disease is not new. It was identified in this hemisphere in 1954, and it is now known in the Far East, Cuba and Venezuela.

The transmission is believed to be caused by leafhoppers; but the isolation of these leafhoppers has not been at this time identified.

All commercial varieties of rice grown in the U.S. are susceptible to white leaf disease.

USDA is attempting to develop a disease-resistant variety, but reported that none of the resistant lines thus far discovered have equalled commercial quality. No varieties of long-grained rice, important to the Gulf Coast, have been found resistant to the white leaf virus.

The white leaf virus is known in the Spanish American nations as "hoja blanca rice disease." It is a real threat to the U.S. rice crop.

Control methods now are to destroy the rice crop where infestation is found. According to USDA officials the best remedy is to use pesticides to kill the leafhopper which is suspected as the agent to transfer the disease.

Fruit Fly Trapping Activity Shows Big Gain in California

SACRAMENTO—An increase this season in the number of Mexican fruit flies trapped near the Mexico-Southern California border has compounded the difficulties of entomologists charged with keeping the pest out of California.

Robert Harper, chief of the California Department of Agriculture's Bureau of Entomology, reports 111 individual flies have been trapped during the past two months. The total for the three previous years was only 48.

He said there still was not an established infestation in Baja, Cal., and added that the flies were coming from contraband mangoes smuggled in from the Mexican mainland.

Spraying and trapping, intensified along the border since the increase in the Mexican fruit fly population began, so far have prevented any of the imported pests from reproducing.

Changes Considered In Georgia Grades

ATHENS, GA.—The University of Georgia soil management committee is considering several fertilizer grade changes and has asked industry representatives for their opinions on the proposal.

Suggested changes are: substitute 0-14-14 for 0-12-12, substitute 15-0-15 for 14-0-14, substitute 6-12-6 for 5-10-5 and substitute 6-12-12 for 5-10-10. If the changes are made they will go into effect next July.

New Plant

DODGE CITY, KANSAS—Hi Plains Dehydrating Co., a newly incorporated firm here, has announced plans to build a fertilizer plant.

USDA Maps Fire Ant Control Work

WASHINGTON—The recent congressional appropriation of $2.4 million for control of the fire ant by the U.S. Department of Agriculture probably will be spent in isolation of this pest, USDA officials told Croplife last week.

They said that at the local infestation level they are planning to use pesticides to halt the fire ant within its present area of infestation.

The USDA funds are relatively inconsequential if the fire ant infestation is as bad as sensed in official channels. This means that the pesticide industry may have a big opportunity to exhibit its initiative to pump up the USDA activities in the fire ant control program.

USDA officials told Croplife that the fire ant may be now spreading into other previously non-infested areas.

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E. O. Burroughs, Jr.

SAFETY CHAIRMAN — E. O. Burroughs, Jr., manager of the insurance department, F. S. Royster Guano Co., Norfolk, Va., is chairman of the Fertilizer Section, National Safety Council, which will hold its annual meeting Oct. 21-22 at the LaSalle Hotel in Chicago.

Program Announced For Conference on Control Procedures

WASHINGTON—A conference on chemical control procedures and problems, sponsored by the Chemical Control Committee of the National Plant Food Institute, will be held at the Shoreham Hotel in Washington, D.C., Oct. 17. This is the first conference of its kind to be sponsored by NPFI.

Chemical analysts of the fertilizer industry and of the state regulatory services are invited to attend and participate in the discussions. Dr. V. S. Sauchelli, NPFI chemical technologist, is chairman of the conference and will open the session.

Included on the program are the following speakers and their topics:

Walter J. Murphy, American Chemical Society, "The Chemical Analyst in Today's Industry"; Robert P. Thornton, Thornton Laboratories, "F.A.R.I. Chemical Control Project"; M. D. Sanders, Swift & Co., "The Place of the Chemical Control Laboratory in Fertilizer Plant Operations"; Sam F. Thornton, F. S. Royster Guano Co., "The Magruder Sample Work"; Carrol H. Perrin, Canada Packers, Ltd., "Need for Standard Samples of Phosphate and Potash"; A. S. Carter, Purdue University, "The Relationship of the Chemical Control Office to the Local Fertilizer Industry"; J. A. Smith, Sohio Chemical Co., "Rapid Method for Determining Urea in Ammonia Solutions"; and E. D. Schall, Indiana State Chemist office, "Review of Nitrate-Chloride and Tetraphenyl Boron Method."

H. L. Marshall, Olin Mathieson Chemical Corp., will report on "Collaborative Study on Triple Superphosphate" for the NPFI Chemical Control Committee.

Ragweed Spraying Under Way in Oregon

SALEM, ORE. — The Oregon Department of Agriculture is now spraying without cost to landowners all ragweed infestations in western Oregon, but has no authority or funds to spray tansy ragwort. At the end of the first two weeks of the program, George H. Moose, supervisor, reports the special spray equipment has operated on about 1,800 acres of spotted to heavy infestations in Marion, Clackamas, Benton and Polk counties.

California Group Hears Report on Training Agchem Specialists

BAKERSFIELD, CAL.—The training of technicians in the field of agricultural chemistry was the major topic for discussion at a recent meeting of the Kern Agricultural Chemical Assn. here.

Holger S. Hansen, chairman agriculture department, Bakersfield College, outlined the school's program for training young men in the sciences having to do with chemical management of the farm. Following his address, Mr. Hansen participated in a panel discussion with members of the association concerning the growing need for skilled technicians in agriculture.

It was generally agreed that the association would work closely with Bakersfield College to encourage students to prepare for growing opportunities in the field of entomology, soil chemistry, agronomy and kindred professions. Also, plans were formulated for night-class training to improve the usefulness of employees now engaged in this line of work.

Members and guests of the association present at the meeting represented about 90% of the local industry.

Selden Morley, agricultural commissioner of Kern County, has been invited to address the next meeting of the association on the subject of "Regulations Controlling Application of Certain Agricultural Chemicals."

Eastern Entomologists To Meet Nov. 25-26

NEW BRUNSWICK, N. J. — The Eastern Branch meeting of the Entomological Society of America will be held at the Commodore Hotel in New York Nov. 25-26, B. F. Driggers, New Jersey Agricultural Experiment Station, branch secretary, has announced.

A highlight of the program will be a discussion of the elements of entomology with four leading entomologists to speak on four aspects of this subject. Other speakers will discuss the problems involved in mass control of insects.

"Garden Gadgets" will be the subject of an informal discussion to be held during the evening of Nov. 25. In addition to the above program, papers submitted by the members of the society will be presented at the meeting.

Dr. E. H. Smith, New York State Agricultural Experiment Station, Geneva, N. Y., is chairman of the program committee. C. C. Alexander, Geigy Agricultural Chemicals, Ardsley, N. Y., is chairman of the Eastern Branch of the Entomological Society of America.

Program Announced For Shell Chemical Nematology Workshop

ST. LOUIS—The program has been announced for the Shell Nematology Workshop to be held Oct. 9-10 at Hotel Kingsway here. The workshop is being presented by the Agricultural Sales Division of the Shell Chemical Corp., New York. The program:

Oct. 9—Welcome by J. H. Hawke, district manager, agricultural chemical sales division for Shell, St. Louis; "What are Nematodes?" G. Thorne, professor of plant pathology and zoology, University of Wisconsin; "Nematode Control," Dr. V. G. Perry, U.S. Department of Agriculture nematologist, Madison, Wis.; and a panel on "Where Plant Parasitic Nematodes May Be Found."

Panel topics and members will be R. O. Bulger, supervisor, Central Plant Pest Control Region, U.S. Department of Agriculture, panel leader; "The Findings of Nematode Surveys in Kansas," Dr. O. H. Elmer, professor of botany, Kansas State College; "Melon Fumigation," Dr. G. F. Warren, professor of horticulture, Purdue University; "Nurseries and Orchards," Don Taylor, nematologist, University of Minnesota, and "Aspects of Cotton Fumigation in Missouri," Lee Jenkins, associate professor of entomology, University of Missouri.

Oct. 10—"A Review of the Economics of Fumigation," Dr. Perry; "Soil Fumigation Application Equipment," Dr. E. F. Feichtmeier, manager, product application department, agricultural research division, Shell Development Co., Denver; "Nematode Control by Soil Fumigation," C. W. McBeth, head of the department of nematology, agricultural research division, Shell Development Co., Modesto, Cal.; "How the Market Accepts New Ideas," Dr. J. M. Bohlen and Dr. G. M. Beal, Iowa State College sociologists, and a summary by B. J. Fitzgerald, district representative, agricultural chemical sales division, Shell Chemical Corp., St. Louis.

Session chairmen will be Dr. M. B. Linford, professor of plant pathology. University of Illinois, Dr. Max Schuster, associate plant pathologist, University of Nebraska, and Dr. J. H. Lilly, professor of entomology, Iowa State College.

Alabama Association To Hold Pest-O-Rama

MONTGOMERY, ALA.—The Alabama Association for Control of Economic Pests will hold a Pest-O-Rama in the Coliseum in Montgomery next Jan. 20-21. W. G. Eden, secretary-treasurer of the association, said it will be "one of the biggest pest control meetings in the history of the Southeast."

Career Opportunities in Agricultural Chemicals Growing, NAC Survey Discloses

WASHINGTON — Agricultural chemicals industry executives report expanding opportunities and attractive salary advancement for scientists with B.S., M.S., or Ph.D. degrees in the biological sciences. They credit the favorable conditions for careers in the industry to the growing demand for industry products—insecticides, fungicides, herbicides and related materials.

This is the consensus of a recent survey of industry leaders on career opportunities for scientists in the agricultural chemicals field made by the National Agricultural Chemicals Assn. and reported in the August issue of NAC News.

Starting salaries range from $375-450 a month for men with B.S. degrees to $525-650 a month for Ph.D.'s with reasonably rapid advancement for qualified men up to $10,000-15,000 a year. The survey also revealed that more than 50% of top administrative personnel in agricultural chemicals companies — division managers, research directors, sales managers and company presidents—have scientific backgrounds and have come up through the ranks.

Demand for scientifically-trained men and women right now is bigger than the supply in the industry, and this condition is expected to continue for many years to come, the survey disclosed. Especially needed are entomologists, plant pathologists, plant physiologists, nematologists, agronomists, biochemists and chemical engineers.

The industry had about $25,000,000 in sales of basic chemicals in 1956, and it has one of the fastest growth rates of any industry in the country. Sales have increased 640% over the past 17 years compared with a growth of about 550% for the entire chemicals industry.

"Soil," Yearbook Of Agriculture, Published by USDA

WASHINGTON—Up-to-the-minute information on soil care of use to home gardeners as well as farmers is emphasized in the 1957 Yearbook of Agriculture, "Soil," which was published Sept. 22 by the U.S. Department of Agriculture.

The book's 88 chapters were written by 142 scientists in the fields of soil management, botany, chemistry, horticulture, soil conservation, agronomy, irrigation and others.

Ezra Taft Benson, secretary of agriculture, says in his foreword: "More research — continuing, thorough research—in the management of soil and water is a vital part of our long-range program. Not only must we learn more about the management of soil and water, we must encourage the wider dissemination of the results of this research. That is why I am so keenly interested in this Yearbook of Agriculture and commend it to you and your neighbors."

Of particular interest to people who have gardens, lawns, fruit trees and small acreages are chapters about soil management for home gardens and lawns, ornamental plants, vegetables, orchards, windbreaks, soil acidity and the bases of fertility.

Major attention also is paid to soils and plant growth, plant nutrition and fertility, soil moisture, the trace elements necessary for plants, applying fertilizers, principles of tillage, erosion, soil and insects and plant diseases, irrigation, soil management for main crops and the economic aspects of soil management.

One comprehensive section deals with soil management and needs in each of 16 regions of the U.S.

The preface to the new yearbook quotes a statement in the 1938 Yearbook, "Soils and Men": The social lesson of soil waste is that no man has the right to destroy soil even if he does own it in fee simple. The soil requires a duty of man which we have been slow to recognize."

It goes on to say: "A purpose of the present book is to indicate the extent to which that warning has been heeded—and at times to repeat it—and to describe the knowledge about soils that scientists and farmers have since gained."

The book contains many tables of measurements, graphs that show amounts of fertilizer to use, instructions about composting and improving soil structure, maps of soil and climate zones and details of farming practices throughout the country.

The Yearbook of Agriculture has been published nearly every year since 1849—before the U.S. Department of Agriculture was established. It is a congressional document, and each senator and representative in Congress has a limited number of copies for distribution. USDA buys some copies for its employees, but has none available for general distribution.

Copies of the 1957 Yearbook of Agriculture may be purchased at $2.25 each from the superintendent of documents, Government Printing office, Washington 25, D.C. Requests for copies should not be sent to USDA.

Georgia Plant Food Group Plans Meeting

ATHENS, GA.—The annual meeting of the Georgia Plant Food Educational Society will be held at the Continuing Educational Bldg., University of Georgia here next Jan. 14-15. The meeting theme will be "Continuing the $200,000,000 Program."

Symposium on Trace Elements Scheduled At Ohio Station

WOOSTER, OHIO — Leading authorities on trace elements will appear at a symposium built around the theme "The Metabolic Roie of Trace Elements in Plants, Animals and Micro-organisms," at the Ohio Agricultural Experiment Station here Oct. 14-16. The symposium will be part of the 75th anniversary celebration of the station.

Coming from all parts of the nation plus Germany and Australia, the men will bring together a digest of knowledge accumulated on the function of minor elements since the spotlight was directed on them a decade or more ago. The Kettering Foundation at Yellow Springs, Ohio, is assisting in staging the conference.

Beginning with the general role of trace minerals in plants, animals and lower life, the conference will swing to problems concerning specific elements including manganese, selenium, cobalt, boron, iodine, molybdenum, vanadium, copper, zinc and iron.

Andre Pirson of the Botanical Institute of the University of Marburg in West Germany will speak on the part manganese plays in the well-being of living things. This element has been causing trouble in the northwestern grain-growing counties of Ohio. A chlorosis capable of reducing yields has developed in soybean fields; and scientists have traced its cause to manganese deficiency.

Australian E. J. Underwood, author of the most current book on minor elements, will present a general discussion of the importance of them to animals. The scientist is a member of the staff of the University of Western Australia at Nedlands. He is responsible for putting the finger on trace elements as the factor causing the so-called "bush disease" in Australian sheep flocks.

American authorities who will appear on the program include Daniel I. Arnon of the University of California, S. H. Hutner of Haskins Laboratories in New York City, A. L. Moxon of the Ohio Agricultural Experiment Station, K. C. Beeson of the Agricultural Research Service, USDA, at Ithaca, N. Y., G. K. Davis of the University of Florida, John Skok of Argonne National Laboratories near Chicago, Samuel Kirkwood of the University of Minnesota, Alvin Nason of the McCollum-Pratt Institute in Baltimore and H. R. Mahler of Indiana University.

G. A. Elvehjem, chairman of the biochemistry department and dean of the graduate school at the University of Wisconsin, will summarize the trace element reports.

Banquet speaker will be C. F. Kettering, who organized the foundation bearing his name. His topic will be "Research and the Future."

Spraying Reclaims Sagebrush Land

BAKERSFIELD, CAL. — Aerial spraying can reclaim sagebrush land in California to yield 75% more cattle forage, according to spokesmen for the United States Bureau of Land Management. Large scale tests have recently been completed near Crowley Lake by the bureau.

Richard H. Petrie, assistant district manager for the Bureau in Bakersfield, reported that more than 2,000 acres were sprayed with a mixture of 2,4-D in an oil and water basin. The cost of eradication of the sagebrush and rabbit brush was less than $3.50 an acre, he said.

The area that was sprayed was selected because of its 6,970 ft. elevation and the often adverse flying conditions in that altitude. The job was successful from every aspect, Mr. Petrie said, and much land was reclaimed for cattle raising.

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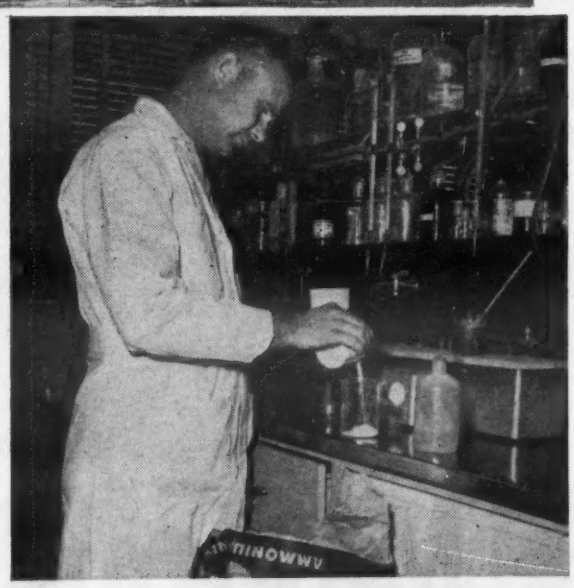

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INSECT AND PLANT DISEASE NOTES

Variety of Insects Active in Florida

GAINESVILLE, FLA.—The sweet potato weevil in larval and adult stages was collected on sweet potatoes in Palm Beach and Jefferson counties. A leafhopper in the adult stage was collected on lemons in Alachua County.

Other fruit flies active in Florida are the annona seed chalcid, fruit scarring worm and green lace wing. Also causing some damage are the soft brown scale, citrus snow scale and the citrus whitefly.

The pineapple scale in all stages averaging many per plant was discovered in Dade County.—H. A. Denmark.

Tobacco Mosaic Virus Severe in South Carolina

CLEMSON, S.C.—The tobacco mosaic virus is severe in some fields in Spartanburg County. One field observed had 95% affected plants. Other fields observed had 20-40% affected plants. It is estimated that where plants are infected, near maturity losses will average 15%. Plants infected at time of setting may sustain much higher reduction in yield. Infection often comes from tobacco users.

Velvet bean caterpillar moths are present in Lee County. A defoliated field was spotted in Clarendon County.

Larger size corn earworms were seen in Lee County than elsewhere. Bacterial leaf spot is present in Florence County. There has been a considerable increase in insect activity in soybeans. A moderate downy mildew infestation was observed in Saluda County. The fall armyworm is present in most hegari plantings and is causing considerable injury in some cases.

The southern blight damage is heavy on tomatoes in some counties. The cabbage looper is reported to be seriously damaging young cucumbers on at least one farm and causing some injury to tomatoes. White pine is dying in Saluda County. The cause has not been determined.

Many cases and some deaths of animals have been reported as being caused by the screwworm.—W. C. Nettles, L. M. Sparks and F. H. Smith.

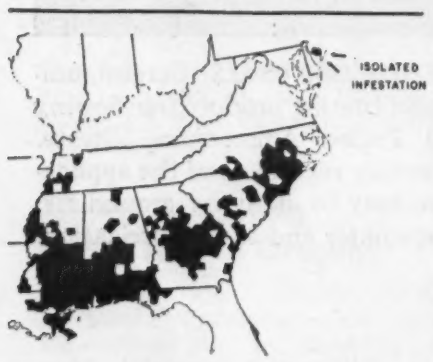
Cotton Bollworms Active In N. M. Cotton Fields

STATE COLLEGE, N.M.—Cotton bollworms continue to cause heavy damage in most cotton fields in Dona Ana, Eddy, Luna and Hidalgo counties. Infestations in Chaves, Quay, Curry, Roosevelt and Lea counties are generally light to medium with scattered heavy infestations.

Cotton leafworms are generally heavy in cotton in Quay, Curry, Roosevelt, Lea, Otero, and Hidalgo counties. Many untreated fields are severely damaged. Moths, pupae, worms of all sizes, and eggs are also abundant in untreated cotton. Infestations in Chaves, Eddy, Dona Ana and Luna counties are light to heavy and spotty.

Cabbage loopers are general but light in cotton in Dona Ana, Luna, Lea, Eddy and Chaves counties. Cotton aphids are generally very light and spotty in most cotton growing areas. Spider mites are light to heavy and very spotty in cotton in Chaves, Lea and Dona Ana counties.

Cabbage loopers are medium to heavy in fall lettuce in Eddy, Lea, Dona Ana, Bernalillo, Valencia and Sandoval counties. Most growers are using control measures. Tomato hornworms are light to heavy in tomatoes in Dona Ana, Lea and Luna counties depending on control. Tomato fruitworms are generally light to heavy on tomatoes in Luna and Dona Ana counties with heavy loss in some fields where control measures weren't used.—John J. Durkin.



WHITE FRINGED BEETLE—Counties infested by the white fringed beetle are shown in the shaded areas of the above U.S. Department of Agriculture map. The infested area totals 610,466 acres. A total of 170,000 acres has been free of the beetle for three or more years following prescribed treatment, according to USDA.

Delaware Reports Downy Mildew Attack

NEWARK, DEL. — Downy mildew in lima beans has been found in Cape May County and near Bridgeville, Del. A more severe infestation is expected in Cape May County and in some other areas of the state.

Black Cutworm Infests Maryland Sweet Potatoes

COLLEGE PARK, MD.—The black cutworm has caused heavy injury to sweet potatoes in some fields in Wicomico County, Maryland, eating large holes in the roots. One farmer estimated he lost 200 bu.

Grubs of the northern masked chafer (formerly called the annu white grubs) are feeding on gra roots and killing spots in the Colle Park area. Six to nine grubs p square foot were found in one law

An increase in cattle lice is ex pected, as hair lengthens and ani mals come closer together.

Boxelder bugs will move soon fro their host tree (the boxelder or as leaved maple) to houses where th become a nuisance. A fall infestatio of clover mites is expected and hea protective sprays are recommende —Theo. L. Bissell and Wallace Harding, Jr.

Hopper Damage Not Over in Nebraska

LINCOLN, NEB.—Grasshoppe populations are declining rapidly, bu serious damage may occur to margin of fall seeded grains and legumes un less the insects are controlled. Rober E. Roselle, extension entomologist a

. . . Magic Yellow sewn

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e University of Nebraska, suggested ept. 16 that farmers spray field argins at the time of planting or efore heavy feeding occurs.

irginia Areas Report orn Earworm Damage

BLACKSBURG, VA.—Spotty dam- e to soybeans from the corn ear- orm is continuing in parts of east- n and southeastern Virginia.

The detection of infestations eavy enough to call for applica- ions of insecticides will be largely p to individual farmers and fields hould be checked every day or two ntil the pods are too tough to be ed on by earworms.

Fall armyworms have not been und in outbreak proportions in soy- an fields in Virginia to date, but e combination DDT-toxaphene, hich controls earworms and fall myworms, is being widely used as precautionary measure.

Green cloverworms, all sizes, were found in most soybean fields surveyed. They are foliage feeders and pod protection is urged and the foliage can be injured. If controls are applied for the earworms and/or fall armyworms, the cloverworms, as well as bean leaf beetles, cucumber beetles, etc., will be controlled.—Arthur P. Morris.

Record High Cotton Yield Forecast

WASHINGTON — A record high yield of 446 lb. an acre has been forecast for the 1957 cotton crop by the Crop Reporting Board. Based on Sept. 1 reports the cotton crop is estimated at 12,713,000 bales on an acreage of 13,686,000. Previous record high yield was 417 lb. an acre in 1955.

ANGULAR LEAF SPOT

REFUGIO, TEXAS—Angular leaf spot has reduced cotton yields in Refugio County by as much as 25%, according to D. F. Bredhauer, county agent.

Florida Soil Science Group Plans Meeting

GAINESVILLE, FLA. — The Soil Science Society of Florida will hold its annual meeting Dec. 4-6 at the University of Florida here. A fertilizer symposium will be held on Dec. 5. G. D. Thornton, assistant dean of the University of Florida College of Agriculture, is program chairman.

More Lime Needed

ATHENS, GA.—Only 4½% of the total cropland and improved pasture acreage in Georgia is being limed, P. J. Bergeaux, University of Georgia extension agronomist, reported recently. Soil test information, he added, indicates that over half of Georgia soils are strongly acid and need lime. Georgia farmers are using only about one-half the recommended rates of mixed fertilizer and about one-third the recommended rates of nitrogen, Mr. Bergeaux said.

Cellulose Producer Begins Tree Farm Fertilization Project

NEW YORK — Rayonier, Inc., a chemical cellulose producer here, has announced that it is conducting a large scale forest fertilization program on a Rayonier tree farm in Florida.

James T. Sheehy, executive vice president of the firm, said that the program is bing undertaken primarily to test the response of southern pine to plant food.

Supervising the experiment, being conducted by Rayonier's Southeast Timber Division and the Nitrogen Division of Allied Chemical & Dye Corp., New York, is Dr. T. E. Maki, professor of forest management at North Carolina State College.

Mr. Sheehy said that it has been demonstrated in the program that no special or costly new equipment is needed for fertilizing tree plantations.

"A standard farm tractor pulled a spreader we borrowed from a local farmer who uses it for pasture fertilization," he said.

Rayonier's experimental area was divided into 84 plots. Eighteen different treatments were given to 72 of the plots and 12 were used as control plots. Fertilizers applied at varying rates and in several combinations were urea, ammonium nitrate, ammonium nitrate-limestone, triple superphosphate and muriate of potash.

Mr. Sheehy said that detailed comparisons between trees in the control plots and the fertilized plots will be made in about five years and at intervals thereafter. Comparisons will also be made between size and general health of the fertilized trees now and later.

Rayonier owns or controls nearly 2,000,000 acres of farmed forests in the U.S. and Canada. "We hope that our Florida experiment with chemical fertilizers will result in improved tree quality as well as growth," Mr. Sheehy said.

He said that Rayonier also looks for the experiment to show the practicality of fertilizing nutrient-deficient soil, particularly in the South. There it has been estimated that some 15-million acres of forest land might well be made more completely productive through fertilization.

Mylone Now Being Used Commercially

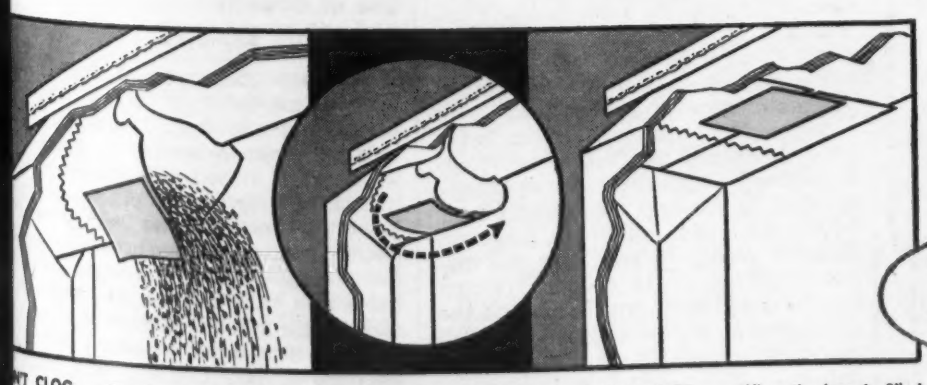
NEW YORK—Crag Mylone, a new powdered soil fumigant manufactured by Union Carbide Chemicals Co., division of Union Carbide Corp., is being used commercially by farmers for the first time as a pre-planting treatment on tobacco seed beds, the company has announced. Prior to this fall Mylone was applied to tobacco seed beds only on an experimental basis and was not available for commercial sale.

The fumigant is designed for control of weed seeds, soil fungi and nematodes. The company said that it may be used in ornamental propagating beds, as well as tobacco seed beds. Experimental use is continuing in many states on vegetable and forest tree seed beds and on turf.

Formulated as an 85% wettable powder, Mylone can be used dry, or suspended in water as a drench or spray. Dosage is six pounds per 100 square yards of bed (¾ lb. per 100 square feet). The product needs no plastic cover. Growers are applying it with fertilizer spreaders, sprinkling cans or sprayers.

Union Carbide said that successful experimental fall treatments were conducted for three years in South Carolina, two years in Georgia, and last year in Massachusetts, Pennsylvania, Kentucky, North Carolina, Tennessee, Virginia, Connecticut and Maryland.

multiwall sleeve valve



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The Present and Future of Chemicals for Agriculture

By DALE E. WOLF*
E. I. du Pont de Nemours & Co.

In thinking about the application of chemicals in agriculture, now and in the future, we can take at least three different approaches.

First, we can consider chemicals simply as materials. Examples of these would be paint and other finishes, plastics used in buildings and equipment, various textile fibers, neoprene and packaging films.

A second aspect of particular interest to engineers, I should think, would be some of the physical properties of chemicals—such as their behavior at various temperatures, their response to light and pressure, their use as fuel, and their use for heat exchanging as in refrigeration, or heat transfer agents. Two of the most promising fields of chemical development on this score are, of course, applications of energy from the sun and from nuclear reactions.

Third comes the direct use of chemicals which have biological effects on plants, animals, insects or plant diseases. In my own work I am mostly concerned with this third category, so I want to spend most of my time on it.

Biological chemicals as we think of them today include weed killers, insecticides, fungicides, seed treatment materials, growth stimulants, fertilizers and feed supplements for poultry and livestock. The history of the development of any one of these chemicals is an interesting and fascinating subject in itself.

Teamwork Brings Most Farm Pests Under Control

Over the past 75 years, agriculturists and chemists working as a team have gradually brought under control, though not eradicated, most of the serious pests, be they insects, fungi or bacteria, which affect plants above the soil line. This has put the farmer into a position where he can live with the enemies of his crops. Through seed treatment with mercurial compounds and through development of soil fumigants (both fungicides and nematocides), they have also made a start toward controlling the pests which work underground, although the chemicals for this use are much more limited than those used above ground.

Progress has been steady toward more effective, safer and cheaper methods of pest control. The development of organic fungicides and of the organic insecticides, such as the chlorinated hydrocarbons and the organic phosphates, has brought about a situation where the grower applying to his state agricultural experiment station can receive sound recommendations for the protection of almost any crop against its major enemies.

Certainly, the science of pest control has contributed to the more than 50% increase in American agricultural production for human consumption since 1920, when the cultivated acreage of the United States leveled off. There is then, perhaps, some reason to point a finger at the biologists, chemists and engineers of the country and accuse them of contributing to the difficulties which now confront the secretary of agriculture in disposing of our abundance.

We have heard people argue that if we gave more to the bugs, there would be less left to worry about in Washington. However, if this country were to carry on its agricultural industry without benefit of the stabilizing contributions which biology and chemistry have made to crop production during the past century, we might well shudder to think what would have kept us from famine.

Pest control and pest control chemicals offer each farmer a certain measure, imperfect as it may be, of crop insurance. Fungi and insects still take their toll in this country to the tune of seven billion dollars per year, as estimated by the U.S. Department of Agriculture. Floods, drouths, untimely frosts and other disasters of climate still may overwhelm the farmer. But with protective chemicals, he now has some assurance that codling moths, boll weevils or late blight will not suddenly descend upon his crop and completely destroy it.

I would like to take a little time this afternoon to discuss some of the major uses to which agricultural chemicals are being put today and some of the trends in particular fields. There are few plant diseases that cannot be controlled by the efficient use of chemicals. Most control measures, however, are based on covering the entire surface of the plant with the chemical before the disease is present. This type of chemical is termed in the trade as a "preventive fungicide."

Indeed, we have been using preventive type chemicals on most crops since Prof. Millardet, who held the chair of botany at the University of Bordeaux, first discovered that Bordeaux Mixture (copper sulfate and lime) would control mildew on grapes. Since then we have found milder chemicals than Bordeaux and chemicals which will control other diseases, but for the most part we must still apply them before disease appears.

Many industrial, state and federal organizations are currently studying the possibility of using systemic fungicides. It is hoped these chemicals could be applied either to the seed or to the soil before the crop is planted or at the time of planting to make the plant immune to disease. Looking even further into the future, it is quite conceivable that all of our plants could one day be sprayed with a chemical after disease has been noticed in the field. This "magic" chemical would eradicate the disease which is present and prevent any new attacks. Several chemicals such as certain mercury compounds are being used as eradicants today but only for a few specific diseases.

Insecticides Prevent Crop Elimination

There are over 3,500 species of insects in the world that are harmful to plants and animals. All of us are somewhat familiar with at least a few of them that infest vegetables, trees, flowers and shrubs right in our dooryards. We realize how much damage insects could do when we consider the fact that complete crop areas could be eliminated almost overnight if there were no insecticides. There are dozens of good insecticides on the market today. Each of them will kill certain types of insects if applied in the proper manner.

The goal of many research organizations is to find one chemical which will kill all species of insects, be completely safe to the applicator, and cause no harmful residue on the food crop. The ideal chemical would also have to be so effective that insects could not build up resistance to it. Admittedly, to discover such a compound is not an easy task.

As with fungicides, another goal of many research organizations today is to find a chemical which could be applied to the seed, soil or young plants which would either repel or kill the insect if it began to attack the plant. Someone may well find the one compound that would prevent both insects and diseases from attacking a given crop plant.

Above all, new chemicals for agriculture will have to meet high standards of safety to operators and to ultimate consumers. The chemical industry has to take it for granted that the greatest single cost in developing agricultural chemicals is the research necessary to assure their safety.

The treatment of seeds to kill those diseases which are carried on the seed coat prior to planting and to prevent invasion by soil organisms as the seed germinates is a science which is fairly well developed. The chemicals used in this field are probably more universal than that of any other. Corn seed, for example, can be treated using the same rate and the same chemicals, regardless of the variety or kind of corn planted anywhere in the world or in any kind of soil, and still be protected from disease.

Recent advances that have been made in this field have not been in more efficient control of diseases, but in greater ease of application. There is a growing trend in America today toward "ease of use." This is particularly true in the agricultural chemical field in the seed treatment phase. In this field, as in all others, however, there is plenty of room for the discovery of a single chemical which can be used on all crop seeds and the development of new equipment which can more efficiently apply the chemical.

Probably the fastest growing of the current phases of biological chemicals is that of weed control. Weeds have always been with us, but until recent history there seemed very litle hope of controlling these vicious pests except by back-breaking labor. Some archeologists have claimed that whole civilizations have declined or even perished because they choked in a sea of weeds which invaded their primitive clearings.

Marvelous strides have been made in this relatively new science of weed control. All of us know of 2,4-D, even if we've only used it to kill dandelions in the lawn. The discovery of this chemical was certainly an important one. Since the discovery of 2,4-D, we have also seen many new chemicals: chloroisopropylphenylcarbamate, sodium trichloroacetate and amino triazol, to name only a few.

More recently another whole class of weed killers has been developed. These weed killers, which are related to the fertilizer, urea, in their chemical structure, kill the surface seedlings of weed species as they germinate and start to grow, without harming the more deeply rooted crop seedlings. Since this third important type of chemical weed killer was discovered in our own Du Pont laboratories, perhaps you will bear with me if I use our "Karmex" W herbicide as an example in showing what can be done in chemical weed control.

This herbicide has attained great popularity in Hawaii for eliminating weeds from sugar cane and pineapple plantations. On the mainland of the U.S., "Karmex" has found use on asparagus, cotton, grapes and in citrus groves. Other uses are rapidly being developed. The use of "Karmex" W has been aided materially by the development and adoption of good spray equipment. "Karmex" W is a wettable powder and, therefore, is not as easy to apply as are many solutions. The spraying of wettable powders mixed with water requires agitation in the spray tanks. Spraying of large plantations of both sugar cane and pineapples lends itself to airplane applications of chemicals.

When "Karmex" was first proved to be the most efficient weed control agent for use in these two crops, all of us who were in Hawaii at the time studying this use were asked if "Karmex" could be applied by air. We had been used to thinking of applying five pounds of "Karmex" in 100 gallons of water per acre. Both this factor and the fact that none of the airplanes in Hawaii were equipped with mechanical agitation made it look as though "Karmex" could not be used in this way.

Within a few months, however, with the ingenuity of some agricultural engineers and airplane operators in Hawaii, they were soon applying "Karmex" W by air. They had equipped their airplanes with mechanical agitation and had discovered that if they put five pounds of "Karmex" into 12 gallons of water, they could very efficiently apply the chemical. This is only one example of the close cooperation that is necessary to make the most efficient use of any new agricultural chemical. You might also be interested to know that "Karmex" W herbicide is used at higher rates, 20 to 40 lb. per acre, to control all unwanted vegetation.

Use of Growth Stimulants Explored

The use of growth stimulants in agriculture today is a field that is just being explored. Much publicity is being given several new chemicals which it is hoped will enable us to increase yields of crop plants. As yet, however, there is no widely used chemical for this purpose. Suppose, for example, we can develop a chemical which will increase the height of an alfalfa plant substantially and force it into much greater leaf production. It might change our whole approach to harvesting this crop. Experimental treatment of snap beans and dry shell beans has substantially increased the height of the plant, the

* The accompanying article is the text of a talk given by Dale E. Wolf, assistant district sales manager, biological chemicals, Grasselli Chemicals Dept., E. I. du Pont de Nemours & Co., Philadelphia, at last month's meeting of the North Atlantic Section of the American Society of Agricultural Engineers at the University of Delaware in Newark, Del.

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growth of the pods and seed maturity. With chemical regulation of the growth of a plant like the tomato plant, for example, we might be able to telescope the harvest period from six weeks to a much shorter time so that the full production of the field could be harvested at one machine picking instead of the laborious and repeated hand pickings which are now necessary.

No discussion of chemicals in agriculture would be complete without mention of the role which chemistry has played in improving the fertility of the soil. It is interesting that whereas modern methods of pest control have developed in less than a century, the importance of fertilizers and of soil management was common knowledge in at least several ancient civilizations. The science of the use of fertilizers is probably one of the best known in agricultural circles today. Not only have tremendous strides been made in the field as to how best to use different kinds of fertilizers, but a whole new agricultural industry has developed to supply the fertilizer demand.

The use of fertilizers and all of the best control practices have become more and more important as the use of irrigation has increased. If a man can supply his crop with plenty of water, it is foolish for him not to suuply it with adequate fertilizer and to apply the proper chemicals to protect the crop from the pests which can attack it. Thus, it is obvious that the use of chemicals in agriculture is becoming more and more important each year.

Now how does all this affect the agricultural engineering profession? For a good many years the chief impact of these chemicals on the agricultural engineering profession has been the demand for equipment which would place these chemicals where they are needed to do the job. In the chemical industry we have tried various kinds of formulations—solutions, emulsions, wettable powders, dusts, slurries, pellets and even volatile liquids such as anhydrous ammonia where the vapor pressure of the chemical is utilized in moving it from the applicator to the crop row.

Basic Engineering Problems Unchanged

Chemical engineers have worked with agricultural engineers in designing nozzles, airblast equipment, spray pumps, soil injectors and a host of other devices for applying chemicals. From an engineering standpoint, perhaps the problem has become more complex over the years, but basically it has been the same problem. Until recently there has not been much indication that chemicals would demand any revolutionary concepts in the application of agricultural engineering in the production of crops, livestock or poultry.

For example, we have always taken it for granted that certain crops should be sown in rows. So all the machinery used from the breaking of the land right through harvest has been designed for row culture. Now probably the original reason for row culture was to provide space between the plants so that a man could walk through and hoe out the weeds. As the farmer progressed from the hand hoe to horse-drawn and tractor-drawn cultivators, row culture was still the easiest and most practical design for his fields, and provided the best system for mechanical weed control.

Now, however, chemical weed control has progressed to such an extent that the day may not be far off when crops will come through the entire season without any weed control operation being necessary. Then it may be more productive to sow what we now call row crops in some other pattern. And perhaps instead of row pickers for crops like corn and cotton we will have combines as we now have for so many crops which are sown broadcast.

From the point of view of applying the chemical weed killer we will still have to have equipment which will put the weed killer where we want it. And we may have to do this with even more precision than we are doing now. But look at the impact that this one chemical development might possibly have on all the present concepts for designing agricultural field machinery.

Goal: One Treatment For Season's Protection

In the control of insects and plant diseases, I have already pointed out how we are moving more and more toward the concept of systemic protection, which is really the creation of immunity by chemicals. We hope to see the day when we can treat seed or young plants once to obtain protection for the entire season. This, of course, will be a radical departure from the present day concept that you have to have sprayers or dusters and go over the fields frequently during the growing season to keep new growth protected.

In fertilization, I am sure many of you are familiar with the application of fertilizers in soluble form in irrigation water. Even in the humid areas of the southeast, farmers are coming to depend more and more on a controlled water supply through irrigation rather than the haphazard rainfall supplied by nature. Application of fertilizer in irrigation water is highly efficient, and the rate of feeding various elements can be regulated to fit the exact stage of growth of the crop.

Many of the chemicals which we would like to use for soil treatment are quite expensive. Therefore, we want to treat as small a portion of a field as possible and prolong the effect of the treatment as long as necessary. Here we are still in the row culture phase ourselves. To control fusarium root-rot in tomatoes, for example, we are experimenting with treatment of a 12-inch band of soil straddling the tomato row in the field. Once that band of soil is treated we want to be sure that that treated soil remains undisturbed in contact with the roots of the tomato plant for as much of the season as possible.

If we treat the soil at planting time, the normal operations of opening up the planting row and then bringing the soil back around the base of the plant or over the seed dilutes the effectiveness of the chemical treatment. In fact it may introduce new contamination. So in order to get the greatest effect from the chemical treatment of soil, we may have to redesign some of our planting equipment so that it does not move the soil around too much.

Turning now from crops to livestock and poultry for a moment, the effect of chemicals on engineering probably cannot be separated from many other advancements which are taking place, but I think here too we have seen only the beginning. The use of nutritional supplements and medicines in feed has made it more and more possible to regard herds and flocks as living factories for the production of meat, milk and eggs. Especially in the production of milk and eggs we have seen revolutionary changes in the buildings and equipment in recent years. The pen stable and milking parlor management of a dairy herd is considerably different from the old stanchion-type of dairy barn. Batteries of laying hens in cages seem to promise many flock management advantages over older methods. Broiler production perhaps comes closest of any agricultural operation to the pattern of a manufacturing industry.

We have discussed the possibilities of new kinds of chemicals that might solve our present problems more efficiently. These problems basically are how to produce maximum yields at minimum cost per unit of produce. An important consideration with which all of us are faced today is that of future food supply. Thinking people all over the world are beginning to concern themselves with this question.

One of the central considerations in this problem is the fact that the bulk of the world's present food supply is now being grown on only about 2% of the earth's surface, and that it appears that this percentage cannot be greatly increased by new methods, such as erosion control, irrigation, etc.

Of course, basic research is being done on the possibility of utilizing solar energy to raise simple plants such as algae for food, and marine biologists are continually assessing the possibilities for increased production of food from the seas. However, after reviewing some of the revolutionary schemes which have been proposed, one is left with the thought that the demands which may be placed on the world's food supply through future population growth will be met, not by radically new schemes, but by step-wise progress through teams of biologists, agricultural engineers, and chemists such as those who have provided the advances of the last 50 years.

It is now predicted that the population of the United States will pass two hundred million in 25 years. Beyond that it is anyone's guess, but if birth rates continue their present trend, it is quite likely that our population will reach three hundred million within the life span of many of you present.

The challenge to feed these numbers can be met in three ways: One way is to resign ourselves to a more restricted and less interesting diet. The second approach is to increase the proportion of our people engaged in agriculture. The third hope for the future is to rely on the advance of technology, including, of course, advancements in the use of chemicals to increase yields. U.S. Department of Agriculture representatives have estimated that if all of the improved farming practices now available were applied on all American farms, an increase in production of about 20% might result. Beyond that point, the country must depend upon continued research to fill its future needs.

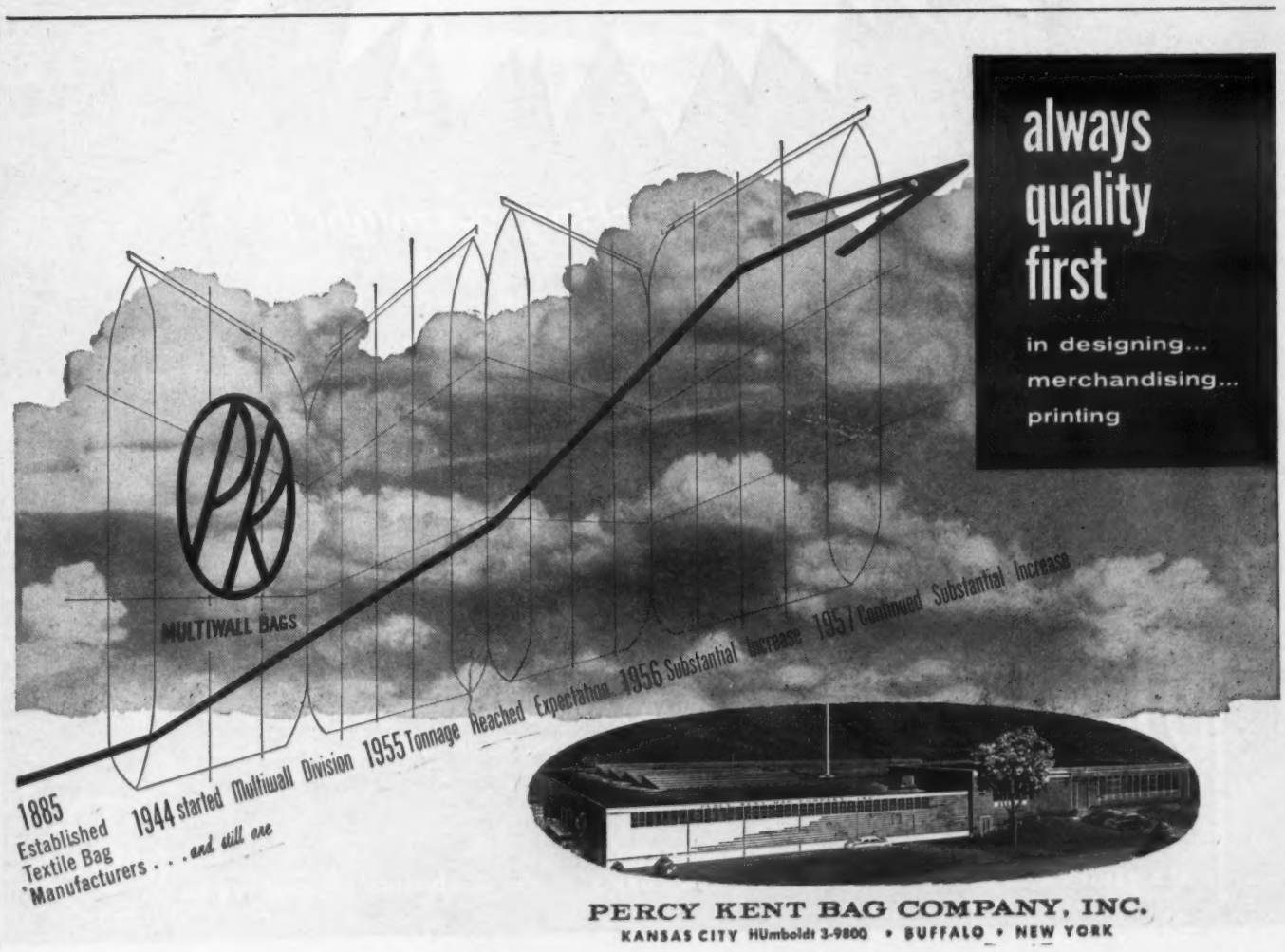
The use of pest control chemicals could never have reached the present state without agricultural engineers, chemists and biologists working as a team. We need, however, even closer cooperation in the future to take advantage of the undoubtedly revolutionary changes that will take place within the next few years.

Ryegrass Growers Reducing Acreage

ALBANY, ORE.—Linn County ryegrass growers are following a ryegrass acreage reduction program through 1958 as the result of a unanimous vote by a special growers' committee at Albany.

Royce Holloway, Albany, and William Spurlin, Brownsville, co-chairmen of the acreage reduction committee, recently said that the U.S. Department of Agriculture crop reporting service figures show a definite reduction in both common and perennial ryegrass acreages this year.

Ryegrass growers in other Willamette Valley producing counties will soon be asked to join Linn County producers in continuance of the program which was inaugurated because of seed surpluses and a depressed market.



Corn of Yesterday, Today, Tomorrow to Be Shown at Field Days

MADISON—A yesterday-today-and-tomorrow corn field will be on display at the 1957 Farm Progress Field Days to be held near here Sept. 24-25 by the University of Wisconsin.

The field is divided into three plots. On one side is the corn of yesterday. All tillage, planting and harvesting are being done with horses and horse-drawn equipment. No commercial fertilizer has been used. There is no hybrid corn in this field. The specialists did not use insect control, but cultivated the field six times.

In the center is the corn of today. Tractor equipment was used. So were hybrid varieties. The specialists used techniques that are standard today.

On the corn of tomorrow, the specialists used tractor equipment. But they eliminated much of the tractor work by planting the corn on rough ground with the wheel-track planting method. There has been no cultivation. Weed control is with chemicals. Specialists used high analysis fertilizers, high plant populations and the newest hybrids. The corn has been irrigated and insects have been controlled chemically.

Results of the three fields will be tallied at harvest time, but visitors at the field days will have a chance to observe the experiment.

A great many other projects involving farm chemicals also will be shown.

One demonstration will show what fertilizer and irrigation will do for pastures. C. J. Chapman, University of Wisconsin soils specialist, reports that a special 14-acre pasture field has been split down the middle with an electric fence. Dr. Chapman fertilized the west half in early April this year—with 13-13-13 fertilizer at 650 lb. per acre.

A deep water hole pit was dug to supply water for the fertilized half of the pasture. Dr. Chapman reports that the hole fills up in 24 hours after eight hours of irrigation. He fertilized again in early July with 300 lb. of the spring mixture. He applied ammonium nitrate on Aug. 15.

To give the land a good workout, 20 milk cows, eight dry cows and two horses are rotated back and forth from the fertilized to the unfertilized land.

Dr. Chapman is keeping a record of pasture days and pounds of milk produced on each side of the fence.

North Dakota Sales

BISMARCK, N.D.—North Dakota fertilizer sales totaled 74,559 tons during the first half of 1957, according to R. O. Baird, state food commissioner and chemist. The total included 20,038 tons of mixed goods and 54,521 tons of materials. Included in the sales were 19,441 tons of superphosphate, 16,599 tons of ammonium phosphate (11-48-0) and 14,374 tons of ammonium phosphate sulphate (16-20-0).

Texas Fertilizer Sales Increase 5%

COLLEGE STATION, TEXAS — Fertilizer sales in Texas during the first half of 1957 advanced 5% over those in the first six months of 1956 as mixed goods dropped 8% in tonnage and materials gained 20%.

Total sales, according to J. R. Fudge, state chemist, amounted to 392,769 tons in the first half of 1957 compared with 372,695 tons in the first half of 1956. Sales of mixed goods declined to 182,114 tons from 197,013 tons, and sales of materials increased to 210,655 tons from 175,682 tons.

Mr. Fudge reported that mixed goods accounted for 46% of the total tonnage in the 1957 period, compared with 53% in the first half of 1956 and 59% in 1952. In the first six months of this year grades of the 1-2-1 ratio accounted for 65% of the total tonnage of mixed goods and grades of the 1-1-1 ratio accounted for more than 12%.

Mr. Fudge noted that over the past seven years the average amount of nitrogen in all fertilizers sold in Texas increased from 8.52% to 19.41%, while the averages for available phosphoric acid and potash changed very little. Total nutrients per ton increased from 24 units in 1950 to 36.27 units in 1957.

Included in the sales totals for the first six months of 1957, with totals for the first half of 1956 in parentheses, were 43,065 tons of anhydrous ammonia (28,486), 17,896 tons of ammonium nitrate (18,221), 42,16[illegible] tons of ammonium sulfate (31,917), 30,397 tons of 16-20-0 (32,660), 24,36[illegible] tons of 0-20-0 superphosphate (20,023), 17,132 tons of 0-30-0 and [illegible] superphosphate (12,327) and 1,63[illegible] tons of potash materials (722).

Test Work Reviewed at New Mexico Field Day

STATE COLLEGE, N.M.—New varieties of crops, variations in cultural practices, and new forage test plots were shown to some 350 farmers and homemakers attending the annual Farm Day program here at New Mexico A&M College recently.

One test plot showed that seeding alfalfa with Coastal Bermuda grass gave an increase of approximately four and one half tons of dry matter per acre above the yield of grass alone and extended the grazing season considerably in both the fall and spring.

Harold E. Dregne of the agronomy department conducted the visitors around a plot which showed how phosphorus fertilizer could do double duty. When applied to a plot that was planted to alfalfa and seed cotton in alternate years, it increased the yields of both crops.

In one test, 60 lb. of available P_2O_5 was applied each year; in a second test, 120 lb. of available phosphate was applied every second year, that is, during each alfalfa year; and in a third test, 240 lb. available phosphate was applied every fourth year. The two-year fertilization cycle proved to be the most productive.

AACCO Plants Have Perfect Safety Records

NEW YORK — Perfect safety records for six months or more have been reported at 14 fertilizer plants of the American Agricultural Chemical Co.

The Spartanburg, S.C. plant has had no lost time injuries for more than four years. Plants at Henderson, N.C. and Pierce, Fla. have three-year records and those at Columbia, S.C. and Norfolk, Va. have two-year records, the company said.

Six-month and one-year safety records were made at Cleveland, Cincinnati and Washington C.H., Ohio, Charleston, S.C., Greensboro, N.C., Montgomery, Ala., Alexandria, Va., Baltimore, Md. and London, Ontario.

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Marketing Trends Noted in 9-State Tour

By Jess F. Blair

EDITOR'S NOTE: A special assignment from Croplife took the author of the accompanying article, Mr. Blair, through nine western states in recent weeks. On the assignment, he attempted to discern what trends the retail farm chemical business is taking; he studied the successful operations and found out why they are profitable; he determined what are the pitfalls which are causing some retail stores to fail; he studied the future of the farm chemical and farm supply store. Many conditions have changed since Mr. Blair's first round-up report of about a year ago. However, one factor which continues to be all-important in the success of a retail farm chemical store is competent management, as the cases in this article so well emphasize.

In a recent 4,600-mile trip through the western states for Croplife, I tried as diligently as possible to learn all I could about problems and trends in the agricultural chemical field. My special interest was in how the dealer of these products was faring. Are modern business trends putting the little dealer out, or is he still surviving? Where has he failed? If he had found some way to succeed, what was his formula?

My travels covered much of Colorado, Wyoming, Utah, Idaho, Oregon, California, Nevada, Arizona and New Mexico. Since much of those states are mountains and deserts which contribute little to upkeep of the population, my route led through the best farming areas.

Moisture conditions were greatly changed from a year ago when I made a similar trip. (Croplife, page 9, Aug. 27, 1956.) Then many areas were in critical need of water. The reservoirs in central Utah were dry and crops parched. Wyoming streams were below normal, while in eastern Colorado the irrigation farmers along the Arkansas River stood by while alfalfa crops died.

This summer it was a far different picture. A heavy snowpack last winter and frequent rains during the spring and summer had given farmers plenty of water almost everywhere. The mountain streams were running high and muddy to feed rivers that were, in some cases, almost bank full.

This happy situation has put farmers in a pleasant mood as bumper crops reach the harvest. It also has meant extra business for the farm chemical industry, because with plenty of water for crops, more fertilizer was used.

Another result of the wet season was a bumper hatch of insects, which descended upon crops early in the season and stubbornly resisted efforts to eradicate them. County agricultural agents, entomologists and farm store owners alike agreed that nearly every area had the heaviest infestation of insects in many years.

The Colorado potato beetle was working overtime and was a very expensive bug for farmers to control. Sugar beet maggots were more numerous than ever in some parts of Colorado, while the alfalfa aphid, after a late start, was being found in almost every section. This summer for the first time it was found entrenched in parts of Central Utah.

Cotton insects seem to get more numerous every year, and this summer was no exception. Throughout southern California, Arizona, New Mexico and Texas farmers were facing a constant fight to save their crops.

These two conditions, extra water for crops and more insects than normal, brought an increase in farm chemical sales. Despite the ringing of the cash register, however, not every dealer shared in this increased business. Many of them found the sailing rough and choppy, and dozens of small owners closed their doors during the last 12 months.

In Southern California, a store owner counted on his fingers the number of stores that had closed during the last year and a half. He counted until the total reached 20, and it was all within a radius of the same number of miles.

He gave two reasons for the failures: Competition from firms doing a superior merchandising job and the encroachment of urban centers into farming areas. In his section particularly the cities are growing so fast that farmers are being moved farther and farther out. As they move away from the nearby stores, many store owners also become casualties of the fast-expanding cities.

Many persons connected with the farm chemical industry say that the trend is toward bulk deliveries and automatic equipment. This appears to be especially true in the feed industry, and many feed dealers who sell farm chemicals go along with this trend. A few, however, merely set up a small part of their store for fertilizers and insecticides and sell them as a sideline.

One district manager of a large chemical company says of this trend: "We try to encourage our dealers to work toward bulk delivery of fertilizer, because it reduces overhead and increases their profit. It doesn't work out, though, in areas where farms have remained small. A man with 20 or 40 or 60 acres still likes to go into the store, talk things over with a dealer and maybe haul the merchandise home."

There seems to be much in what the manager said. It was noticed that in areas like eastern Colorado where farms are large, there is a steady disappearance of small stores. In Utah and parts of Idaho where most of the farms are still quite small, the small farm chemical stores seem to be holding their own.

"It takes too much capital to go into a big building program," said a seed and feed store owner in Oregon. "I decided to change to a departmentalized farm store. I dressed up the old place, repainted it inside and out, put in some nice wall and island displays and started advertising for the suburban and city home owners. I increased the stock from 10 or 12 items to maybe 100, and am doing more business than ever."

Many dealers are following this man's pattern. They found the department stores, grocery stores, lumber yards and even drug stores selling fertilizers and insecticides. These owners then set up their own farm and home department stores and sometimes do more business than ever.

One advantage such a dealer has over the department stores in selling farm chemical and supplies is his opportunity for personal service.

A perfect example of this is in Utah, where an elderly man had changed his business from feeds and poultry to farm chemicals, garden and lawn supplies. For an hour he and his wife were observed waiting on a steady stream of customers.

One woman wanted to know what kind of lawn grass to plant. A farmer asked if a certain kind of insecticide

(Continued on page 15)

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

There is no single approach that applies to all retailers in their efforts to improve operations and do a better job of serving farm and ranch customers. An idea that may work out well for one dealer may not be suitable for another, especially where the size or type of farm operations differs.

One hears the prediction that one third of the stores handling feeds will be out of business in the next few years. This is an awesome prediction. But one needs only to think back about 20 years when some independent grocery store operators refused to acknowledge the advent of the supermarket. Those operators with vision and courage adjusted to the time, and today are successfully operating self-service supermarkets. Those who would not adjust are no longer in business.

Changes are coming rapidly in the business of selling to the farmer. Some trends must be recognized—trends which apply to every farm supply dealer. Acknowledging these trends will enable alert dealers to adjust their operations and remain in business.

There is a trend toward fewer farmers which means that farmers will become more specialized operators. The dealer, however, need not limit his market to this group alone. There will continue to be a vast market for farm supplies and services to the smaller urban type, or so-called twilight farmer.

It does mean that the dealer must first decide whether he wants to serve both or one of these groups and then tailor his operations accordingly.

The dealer must try to anticipate the large volume buyers' needs. He must work with the farmer and his fertilizer supplier, for example, to determine how the large-size farm

(Continued on page 14)

Speakers Named for Meeting of Pacific Northwest Association

PORTLAND, ORE.—The names of several speakers who will appear at the annual convention of the Pacific Northwest Plant Food Assn. have been announced by Leon S. Jackson, secretary of the organization. The convention will be held Oct. 3-5 at Sun Valley, Idaho.

Speakers will include Jack F. Criswell, executive vice president of the Agricultural Ammonia Institute; T. P. Hignett, head of the division of chemical development, Tennessee Valley Authority, Wilson Dam, Ala., who will talk on latest industry technical developments, and W. R. Allstetter, vice president, National Plant Food Institute, Washington, D.C., who will discuss the Institute's expansion program and plans for a regional office on the West Coast.

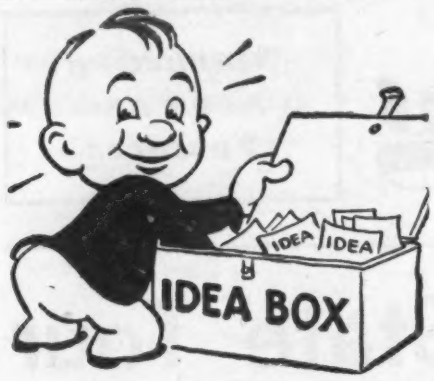
The convention will also hear reports from Frank Taylor, Oregon-Washington Fertilizer Co., Seattle, on the association's soil testing program; Grant Braun, American Potash Institute, Portland, on the demonstration projects, and B. R. Bertramson, chairman of the State College of Washington agronomy department, who will speak on "Salesmanship is Education in Action."

One more speaker is yet to be named.

CHRYSANTHEMUM FEEDING

BERKELEY, CAL.—O. R. Lunt of the department of irrigation and soils, and A. M. Kofranke, department of floriculture and ornamental horticulture on the University of California Los Angeles campus, have found that a high level of nitrogen is very important during the first six-weeks of a 16-week crop of chrysanthemums. The high level the first six weeks provides nutrients needed to produce good flowers, they report. During the last four weeks it is desirable to maintain a low level of nitrogen.

"Your Honor, have you tried explaining jury duty to the alfalfa aphid?"



What's New...

In Products, Services, Literature

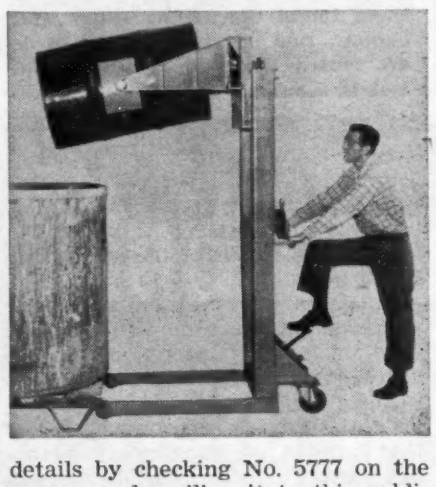
You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6632—Irrigation Timer

A newly designed irrigation timer recommended for farms, lawns or cultivated areas where sprinkling of one section at a time is required has been developed by the Zenith Electric Co. It is known as the model IRR and the timer controls a number of sections in sequence. The length of time per section is factory adjusted but can be set to allow different times for each section. Twenty-four hour control is provided, and the timer can be cut out automatically any day of the week. To secure details check No. 6632 on the coupon and mail it to Croplife.

No. 5777—Drum Handler

The Hamilton Equipment Co., Inc., has developed a unit trade-named, the Hamilton drum handler for handling drums weighing up to 800 lb. Among the unit's features are: It is 6 ft., 6 in. high; one-man control; hydraulically-operated lift which will elevate a drum 56 in. in its vertical position and to 63 in. for pouring; the drum tilts easily and in the pouring position extends 10 in. over the lip of the tank; it has large wheels. Grab arms for carboys or fiber drums are available and are interchangeable. Secure



details by checking No. 5777 on the coupon and mailing it to this publication.

No. 6633—Seed Treatment

The Rainbow Color & Chemical Co. has announced a product which is claimed to improve the heat resistance of plants. The chemical treatment, said to be economical and easy to handle, "shows a substantial increase in the resistance of the plants to high temperature exposure. It is also capable of improving resistance to salinity." Soils of a saline type, located in hot summer climates under adequate irrigation, can be used as good crop land with this method, it is claimed. Secure details by checking No. 6633 on the coupon and mailing it to Croplife.

No. 6634—Spray Hose

The Boston Woven Hose & Rubber Co., division of American Biltrite Rubber Co., Inc., has introduced a new line of Boston spray hose which includes hose for high, medium and low pressure service. The high and medium pressure hose is claimed to be able to handle all types of spray solutions, while the low pressure hose will handle all types of weed killing solutions and insecticides. The spray hose is claimed to be tough, weather resistant and able to meet rugged requirements. Descriptive literature, including all specifications, is available free. Check No. 6634 on the coupon and mail it to Croplife.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 5799—Marketing Letters, Numbers

A new line of self-adhering numbers, letters and signs designed for marking off sections and bins in warehouses and other storage tanks for inspections and for positive identification of areas, overhead hoists and material handling equipment has been announced by the Westline Products division of the Western Lithograph Co. Numbers and letters are available in many size ranges and bold color combinations may be applied in seconds by simple pressure for permanent identification, company officials said. Samples and a catalog may be secured by checking No. 5799 on the coupon and mailing it to this publication.

No. 6628—Pesticide Carrier

Zeolex 7A, the newest of the Zeolex products manufactured by the J. M. Huber Corp., is in commercial use as a pesticide carried for concentrates and wettable powders. Advantages claimed are reduced production costs, cleaner-running mills, with fewer shut-downs and finer grinds. The company's announcement continues: "Zeolex 7A also provides quality improvement: Wettable powders such as DDT for WHO and GSA specifications yield higher suspensions and higher re-suspensions after tropical storage. Surfactant levels can be minimized for additional economy, and the efficiency of the product allows use of substantial amounts of low-cost diluents such as kaolin clays." The product is a neutral material, chemically a hydrated silica and is virtually non-abrasive. The average particle diameter is 0.0[illegible] micron. The product is packed in 50-lb. multi-wall moisture-barrier valve bags and is available in carload and truckload quantities. Literature about the product may be secured by checking No. 6628 on the coupon and mailing it to Croplife.

No. 6627—Film

A 20-minute, 16 mm. sound movie has been produced by the Terra-Lite Division of Zonolite Co. for showing to firms marketing agricultural chemicals. Titled, "Vermiculite, Carrier for Agricultural Chemicals," the film details properties of vermiculite as a carrier for insecticides, pesticides, and weed killers. Production of vermiculite at company mines in South Carolina and Montana, and ag-chemical mixing techniques of the lightweight mineral are shown. Information about free showings may be secured by checking No. 6627 on the coupon and mailing it to Croplife.

No. 6630—Water Soluble Film

A new water soluble, transparent packaging material said to be suitable for fertilizers, insecticides and other water dispersible products has been developed by the Reynolds Metals Co. Called "Reynolon" by the company, the new material is a polyvinyl alcohol, water soluble film. It is claimed to provide product protection during shipping and storage and will protect workers against harmful products. High speed bag forming and heat sealing equipment for the film is available, according to Reynolds officials. Secure details by checking No. 6630 on the coupon and mailing it to Croplife.

No. 6631—Fertilizer Tanks

A brochure and price list for standard sized aluminum fertilizer tanks made by the Broyhill Co. are being offered. The brochure lists specifications for its line of Tori-Tanks and outlines construction and welding details. Various capacity tanks, ranging from 85 to 1,000 gal., are manufactured by the company. The tanks are designed for storing, transporting and applying liquid fertilizers. The company also manufactures both horizontal and vertical steel tanks and rubber lined tanks. Secure the literature by checking No. 6631 on the coupon and sending it to Croplife.

No. 6629—Range Fertilization Booklet

A new booklet, "Range Fertilization," has been published by the California Fertilizer Assn. It contains information for livestock operators and can be secured from western fertilizer suppliers or through Croplife. Contents include sections on earlier grazing possibilities, increased palatability, more feed from the same acres, cutting labor costs, improved forage quality, making irrigation pay, fertilizer carry-over, and how much, when and which to fertilize. Check No. 6629 on the coupon and mail it to Croplife to secure a copy of the booklet.

No. 5797—Farm Canvassing Booklet

Don Ross, field merchandising manager for Successful Farming mazagine, has written a booklet, "The Do's and Don't's of Farm Canvassing," which provides hints on the art of selling successfully to the productive farm market. A copy is available without charge. Check No. 5797 on the coupon and mail it to this publication.

No. 6623—Multi-Purpose Valves

The RegO Division of the Bastian-Blessing Co. has announced two new multi-purpose valves for use on anhydrous ammonia field storage and nurse tanks. Company officials said

Send me information on the items marked:

☐ No. 5754—Dryer Bulletin	☐ No. 6626—Hydrocarbon
☐ No. 5777—Drum Handler	☐ No. 6627—Film
☐ No. 5797—Farm Canvassing	☐ No. 6628—Carrier
☐ No. 5799—Marketing Letters	☐ No. 6629—Range Fertilization
☐ No. 6621—Skin Protectant	☐ No. 6630—Water Soluble Film
☐ No. 6622—Insect Control	☐ No. 6631—Fertilizer Tanks
☐ No. 6623—Valves	☐ No. 6632—Irrigation Timer
☐ No. 6624—Movie	☐ No. 6633—Seed Treatment
☐ No. 6625—Surface Agents	☐ No. 6634—Spray Hose

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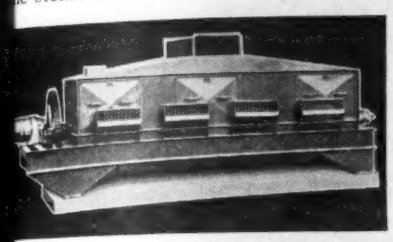
at "design features of the new alves include an exclusive V-ring ressure seal on a stainless steel em, positive shut-off, extra large penings to reduce pressure drop and gged ductile iron bodies. A side ss is provided which can be tapped inch NPT for installation of vent lve, hydrostatic relief valve or plug. n excess flow valve at the inlet will revent escape of gas in case the hose ruptured or the connection is otherise broken." Secure details by hecking No. 6623 on the coupon and ailing it to Croplife.

No. 5754—Bulletin on Dryers

The Anderson 72-tube rotary steam ryer for adjusting moisture content chemicals, minerals and other nonicky granular materials is described a new bulletin No. 457 published the V. D. Anderson Co. The fourage bulletin also describes in detail ow material flows through the dryer. cutaway illustration pictorially hows the unique steam flow through he steam head and tube reel. Speci-



cations including shipping weights, imensions and accessory equipment lso are listed, as well as methods or stacking the units two and three igh, to conserve floor space while ncreasing processing capacity. Secure the bulletin by checking No. 754 on the coupon.

No. 6624—Peanut Weed Control Movie

A new 5-min., 16 mm., full-color ound movie, showing how to control weeds in peanut rows with Crag Sesone, formerly called Crag Herbicide-1, has been released by Carbide & Carbon Chemicals Co., a division of Union Carbide & Carbon Corp. The film shows how to prepare the weed control spray and calibrate the sprayer. Information on how to obtain the movie may be secured by checking No. 6624 on the coupon and mailing it to Croplife.

No. 6622—Insect Control

A chart on home insect control has been prepared by the Real-Kill Co., division of the Cook Chemical Co. The chart is available without charge. Nineteen insects ordinarily found in the home are listed, together with recommended methods of control. The chart is suitable for wall or desk top use. Check No. 6622 on the coupon and mail it to secure the chart.

No. 6621—Skin Protectant

A new skin protective coating, called by the trade name, Ply No. 9 Gel, has been announced by the Milburn Co. It is claimed to be particularly useful to workers in fertilizer and farm chemical processing work. The product is soluble in water but is impervious to phenols, hexanes, coal tars, dry and oil-based insecticides, weed killers and crop dusts, to poison oak and poison ivy and to most organic solvents. To secure details check No. 6621 on the coupon and mail it to Croplife.

No. 6626—Hydrocarbon Booklet

A new, illustrated, 20-page booklet which describes the properties and uses of five important chlorinated hydrocarbons has been published by the Stauffer Chemical Co. The publication contains complete technical data, e.g., typical analyses, solubilities, flash point and density tables and graphs, as well as other pertinent physical and chemical information, for perchlorethylene, trichlorethylene, carbon tetrachloride, methylene chloride and chloroform. One full section of the booklet sets forth optimum handling procedures and methods of minimizing waste. Check No. 6626 on the coupon and mail it to secure a copy without charge.

No. 6625—Surface Active Agents

A new "J" series has been added to the Poly-Tergent line of nonionic surface active agents introduced earlier this year by the industrial chemicals division of the Olin Mathieson Chemcial Corp. Officials state that "an outstanding characteristic of the new series is the wide temperature range over which the products are effective." The range extends from 0 to 100° C. (-32 to 212 degrees F.), it is claimed. One member of the series, Poly-Tergent J-500, can be used at the boiling point of water without serious loss of its surfactant properties. All members of the series are said to be good wetters, detergents and dispersants. For details check No. 6625 on the coupon and mail it.

Fertilizer Gives Significant Boosts To Tomato Yields

SAN MARINO, CAL. — Fertilizer research on tomatoes conducted in San Joaquin County, California, showed significant increases in yield through use of nitrogen alone and nitrogen in combination with phosphate, according to the California Fertilizer Assn. Jack Underhill and Ron Baskett, San Joaquin County farm advisors, compared seven fertilizer treatments with an unfertilized area on the farm of Keith Reeves, south of Tracy.

Each treatment was replicated four times. In two treatments the fertilizer was placed two inches below the seed, in four treatments it was side-dressed eight inches to the side and eight inches deep, and in the seventh treatment the two types of application were combined.

The field was picked twice. The total harvested from the unfertilized plot was at the rate of 14.7 tons per acre. The fertilized plots produced at the rate of 17.1 tons per acre where 60 lb. of nitrogen alone was side-dressed, to 20 2 tons per acre. In the most productive test, 20 lb. of nitrogen and 25 lb. of phosphorus pentoxide (P_2O_5) were placed under the seed, and a side-dressing of 120 lb. nitrogen was added.

LYGUS BUG

DAVIS, CAL.—The lygus bug can cause a loss of 50% or more to a carrot seed crop unless the pest is controlled by properly timed pesticide applications, according to research by the California Agricultural Experiment Station.

INCREASE YOUR SALES with New Guaranteed *Free Flowing* PHILLIPS *66* AMMONIUM NITRATE!

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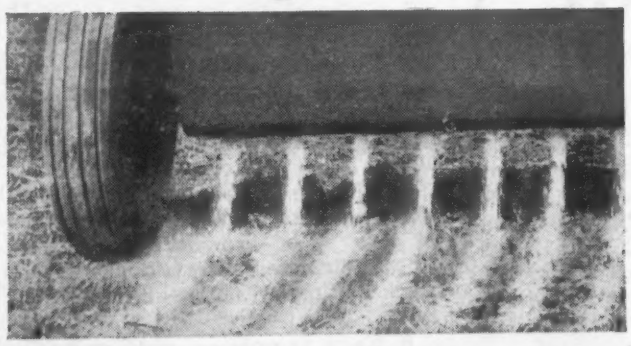
A supporting advertising campaign in farm papers will announce this new high nitrogen fertilizer to your customers and prospects. It will make your overall sales job easier because, in addition to stressing straight nitrogen, this campaign helps you sell mixed goods.



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DENVER, COLO.—*1375 Kearney St.*
DES MOINES, IOWA—*6th Floor, Hubbell Bldg.*
HOUSTON, TEX.—*1020 E. Holcombe Blvd.*
INDIANAPOLIS, IND.—*1112 N. Pennsylvania St.*
KANSAS CITY, MO.—*500 West 39th St.*
MINNEAPOLIS, MINN.—*212 Sixth St. South*
NEW YORK, N. Y.—*80 Broadway*
OMAHA, NEB.—*6th Floor, WOW Building*
PASADENA, CALIF.—*330 Security Bldg.*
RALEIGH, N. C.—*804 St. Mary's St.*
SALT LAKE CITY, UTAH—*68 South Main*
SPOKANE, WASH.—*521 E. Sprague*
ST. LOUIS, MO.—*4251 Lindell Blvd.*
TAMPA, FLA.—*3737 Neptune St.*
TULSA, OKLA.—*1708 Utica Square*
WICHITA, KAN.—*501 KFH Building*

Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

It was about ten o'clock that morning and Oscar and Pat sat at their desks, each doing his specific work. Oscar, with lips set tight in a critical mood, was looking over bills and figuring discounts, while tall, blue eyed Pat sat reading bulletins and magazines, marking, clipping and stacking. His desk was much more disorderly than Oscar's which was a model of neatness and exactness.

Of course, some efficiency experts might question the big 8-ball which Oscar used as a paper weight, and might also question the big green bulldog container in which he kept retrieved paper clips and the glass bowl into which he tossed spare rubber bands, for Oscar was not one to waste a thing.

"Say, Oscar," said Pat suddenly, looking up from a magazine, "this report from the Small Business Administration lists the reasons why businesses fail. It is very interesting."

Oscar's expression was cold, as his pencil halted momentarily. "What has that got to do with us?"

"Well," began Pat, "it might be a good idea if we got out a mimeographed questionnaire to our trade territory entitled 'What's Wrong With Our Business From Your Viewpoint?' "

"Huh," said Oscar, "I know what is wrong with our business. You!"

Pat flushed slightly. "Me?"

"Yes, you," Oscar said bluntly. "Always you are looking for some new way to waste time, something to try. And then you don't work at the things we are already doing. How can you ever expect to get any place like that? Ach, let's do fewer things and do them better. Collections, maybe."

This dart went home, for it was Pat's job to handle delinquent accounts. And the sum total of delinquents had risen in recent months to a dangerous level, largely because Pat had put on so many promotions.

"We are eating, aren't we?" he asked defensively.

"Yah, but we could eat better if you would get after those farmers and make them pay. This way, they use our money month after month. Can't you see that?"

"People can't always pay when you want them to," Pat said slowly. "It's the tempo of the times, Oscar. Even a millionaire lets his bills ride a little rather than cash in his investments. Farmers have investments in their crops, too, and pay when they get their money."

"I don't care about the farmers' investments," Oscar said directly. "All I care about is what is happening to the money I got invested in this business. Is it earning any money for me? Ach, I am not anxious to have it in the farmer's pocket month after month, earning money for him. I am not that big a fool."

"You just don't understand, Oscar," Pat tried to say patiently. "You have to play along with a customer. It costs about $30 to win a new customer with advertising and personal calls. Why not keep the old ones by playing along with them? Then you'll have their business when they can pay quicker. They'll stick with us."

"No wonder they stick with us at the prices you give them!" Oscar growled. "Sometimes the only profit we make is the 2% I get on discounting the bills. You are too crazy to sell. You would go bust in a hurry if you ran this business by yourself."

"And so would you!"

Oscar fumed and chortled. "Well, if I would I would go out and collect everything those farmers owed me before it happened. I would not sell myself into the poorhouse anyway. ach, like you would do if I wouldn't stop you."

Pat sighed. "Oscar, this questionnaire I want to send out would not cost us more than $15 with postage. We could have Tillie mimeograph it. It would just give us a chance to see what our customers think we are doing right, and what we are doing wrong."

"I know what we are doing wrong!" shouted Oscar. "I have been trying to tell you for seven years. You sell too much and, ach, you give too many discounts. You buy too much, you don't come to work early enough in the morning, you go to too many meetings in the middle of the day and you got more ideas than this business can pay for. You think the only way to run a business is to put on a lot of monkeyshines to get attention."

"Well, you have to make people notice you," growled Pat, a little angry himself. "The wheel that squeaks the loudest gets the grease, you know."

"There are some people that don't like squeaks," Oscar shouted. "Ach, and I am one of them. I never buy anything from a merchant that's got his store decked out like a Fourth of July Parade at Christmas. Genug ist genug!"

"You are in the minority," Pat said levelly. "If everyone felt like you, we would still be living in the 1910's, nobody would ever take a chance on anything, nobody would ever build a house with a mortgage on it, and credit would never be tapped."

"I know it," Oscar said with aplomb. "That's what's wrong with the world. Ach, there should be more people like me who cut costs, get along with what they have, and who save some money now and then."

"But it takes money to run the world, and when people spend money it makes jobs."

Oscar sneered, "Ach, vat foolishness that is. Maybe it means jobs for somebody, but the man that spends it ain't got it—that's what's bad for him. His pockets are empty—when he gets oldt."

Pat sighed and got up discouragedly. "Okay, we won't send out the questionnaire—now. For once we will let you have your way, even if I think it's wrong."

Oscar smiled sardonically. "Ach, now you are smart. You keep on letting me have my way in this business and you will soon be on easy street, Irisher."

FARM SERVICE DATA

Extension Station Reports

Fertilizer has materially increased the yield of kidney beans in the Linden area of San Joaquin County, according to the California Fertilizer Assn. Despite the fact that the unfertilized plot in this particular research experiment produced a good crop, nitrogen alone and particularly nitrogen and phosphate applied together, brought about significant increases in bean production.

The experiments were conducted by John P. Underhill and Ron Baskett, San Joaquin farm advisors, on the Robert Benjamin ranch near Linden. In 1954 a test on the Cerri Brothers ranch indicated, too, that application of nitrogen and phosphate together was better than nitrogen alone.

Fertilizer on the Benjamin plot was side-dressed with fertilizer at the time the beans were in the 3 to 5 leaf stage, to a depth of 7 to 8 inches and 9 inches to the side of the row. There were 5 plots and 3 replications. The report states that "even though good increases with fertilization were obtained in this test, the check plots (unfertilized) were very good. The field had only 2 years previous cropping to beans. In a field of 15-18 sack average yield, greater increases could probably be expected with fertilization."

★

Ways to determine fertilizer needs of fruit trees have been outlined by A. M. Binkley, chief horticulturist for the Colorado Agricultural Experiment Station.

Determining these needs, Mr. Binkley said, requires more information from fruit growers and more detailed observations than with nearly any other group of crops. Responsibility of the individual grower, he added, is higher also than with any other crop.

The horticulturist has advised fruit producers to follow these nine steps in setting up a fertilizer program:

1. List the commercial fertilizers applied each year for the past five years.

2. List the cover crops used in the orchard and estimate the amount in tons disced into the soil.

3. Estimate the amount of nutrients removed each year.

4. Note any problems in the orchard, such as spotty or seepy soil conditions. Examine the soil frequently at various depths using a soil auger.

5. Observe the length of new terminal wood growth. Set up a standard of new shoot growth by varieties. Check diameters. Growth should be thick and heavy, not weak and spindly.

6. Keep records on yield and size of fruit. Yield is influenced by climatic conditions, variety, pruning, cultural practices, soil type and use of irrigation water. Check to see if yields are normal.

7. Conduct a soil test at one, two and three foot levels. Depth and distribution of roots are important. If nutrients are being drawn from an extensive soil area, soil tests are less useful. Percentages of soluble salts, and organic matter, and pH readings in orchard soils supply information which is often more valuable than information on nitrogen, phosphorus and potash content.

8. Leaf analysis is a good standard indicator of nutrient condition of trees and of any trend toward a deficiency. Standards have been fairly well established for peaches.

9. Conduct fertilizer orchard trials. Keep records that mean something. Merely looking at the trees is not enough. Compare yields from several non-fertilized trees at scattered points with those from trees that have been fertilized.

★

The most efficient way to use phosphorus on alfalfa is to apply it when making the seedbed before planting new stands of alfalfa, according to the University of Arizona. Adding phosphorus to alfalfa increases the yield on most Arizona soils, and it saves labor and money to apply the fertilizer while preparing the field for planting.

Here's the advice that Lyman Amburgey, University of Arizona extension soils specialist, gives farmers: Before plowing or disking the field, broadcast P_2O_5 over the field. At this time, put on enough phosphorus to last for four years, using 150 to 160 lb. of the P_2O_5 per acre. On old stands of alfalfa apply 50 lb. of P_2O_5 each year, or 90 lb. every other year.

★

Two years of testing Simazin at Oregon State College has shown near-perfect control of weeds in corn when applied just before corn emerges, according to a report from the college. The tests dealt primarily with field corn.

One application of Simazin last spring has given summer-long control of practically all broad leaf annual weeds such as lambs quarter and pigweed and is helping control quackgrass and watergrass, reports Rex Warren, Oregon State College farm crops specialist. Special test plots to check tolerance of corn to Simazin have shown little or no harmful effects when the chemical was applied at nearly 20 times the recommended rate for good weed control, he said.

A sidelight of the trials has been greener and taller corn with Simazin weed control. Mr. Warren says the corn was stimulated more than can be expected from normal weed control.

★

Early fall is a good time to hunt halogeton on the range, says D. W. Bohmont, Wyoming University agronomist. Known stands now grow in the Big Horn Basin and along rights-of-way in south and central Wyoming.

Ranchers and others interested in range management can spot the poisonous weed easily because it turns reddish in early fall. Spread of halogeton is a potential threat to Wyoming livestock, although official reports show no losses so far.

A new publication includes colored pictures of the weed and recommendations for control. Full title is "Halogeton . . . How to Live With It," station circular 48 revised, by F. L. Rauchfuss, Bohmont, and A. A. Beetle, all Wyoming University research workers.

USDA Installs Cobalt Unit at Fruit Fly Lab

WASHINGTON — A U.S. Department of Agriculture operated 400-Curie radioactive cobalt 60 unit has been installed at the agency's fruit fly laboratory unit at Honolulu, Hawaii, USDA announced last week.

This installation, designed to advance entomological research on the effect of gamma rays emitted by the cobalt, will effectively eliminate or render harmless fruit fly infestation in fruits and vegetables, USDA said.

Information on the use of this plant may be available from USDA officials as follows: L. D. Christenson, L. F. Steiner and Mr. Blaylock of the Fruit Fly Laboratory, and G. O. Burr of the Hawaiian Sugar Planter Association Experiment Station.

USS NITROGEN

Rx for fall fertilization

You can help your Western farmer friends with their Fall fertilizer programs by recommending USS Nitrogen Fertilizers now. USS Ammonium Nitrate, USS Ammonium Sulfate and USS Anhydrous Ammonia can help you build greater fertilizer tonnage.

Springtime is busy-time for farmers. Fall fertilizing gets a needed job done and gives them extra time when Spring work piles up. In addition, you usually have a more complete selection in the Fall. Farmers who wait until Spring to do their buying often find popular fertilizers sold out.

As you know, you are not alone under the sign of USS. You are backed up with a widespread Western promotion: radio, billboards, direct mail, local newspapers, magazines, state farm papers, dealer signs, banners and other selling aids.

Add your own sales efforts to these and you will be well-repaid at harvest time... by greater yields for your farmer customers and repeat orders for you next Spring.

USS NITROGEN FERTILIZERS USS

UNITED STATES STEEL

Utah Dealer Says

Changing Farm Situation Places Emphasis on Farm Chemical Sales

When Richard Kearl received his master's degree in agricultural economics at Utah State College, he decided to go into business with his father, L. C. Kearl who had owned a store in Logan for many years.

The firm of L. C. Kearl & Sons Feed Co. serves an area dotted with small irrigated farms, where farmers raise livestock, grain, hay, vegetables and fruit. It is possibly one of the most diversified farming areas in the West.

Richard Kearl saw in this situation an opportunity for a general all-around farm store where farm chemicals, poultry supplies and garden and lawn items could be handled to advantage. He had been reared in the community; he knew the people and their problems, and he felt that the technical training in agriculture would be of great help.

Partly through his leadership, the store now sells more agricultural chemicals than any other firm in the city. Most stores keep a few of the items but they seldom make an effort to increase the sales or build up the stock.

Fertilizer can be made to pay off for the farm store, Richard Kearl feels. In the first place, farmers in his area wanted service as much as they did competitive prices. And since fertilizer had not been used extensively until a few years ago, the land owners still wanted advice on what to use and how to use it. Mr. Kearl has capitalized on this situation. He has studied his products thoroughly; he knows the best time to dust for the alfalfa weevil and when to expect an insect infestation in the vegetable crop. He knows each insect, its eating habits and what it takes to kill it.

Mr. Kearl works closely with the college on agricultural problems, and is in close touch with the county agriculture agent and the various entomologists in the area. He has had many soil samples taken and knows the needs of each crop.

And since he has lived in the area all his life, he has a case history on most of the farms, which is of great help in working with the owners. He was one of the pioneers in getting fertilizer put down during the autumn months, particularly phosphates. Most of the nitrogen is sold in the spring, or used later as side-dressing.

"A lot of area farms have been reduced to 20 or 30 acres," Mr. Kearl says, "so the operators must go in heavily for specialization, or else take jobs in the factories or smaller towns."

Many owners have become part time farmers, and are good customers. They try to make every acre produce its utmost, and they have the cash to buy fertilizer and equipment. The people are usually alert and open to any sound suggestion that will increase the farm income.

Mr. Kearl spends part of his time out in the trade territory, making deliveries, taking orders, giving advice or just talking over the problems of a customer. This type of contact is invaluable, because any time he can help a farmer solve some problem at a profit, it means increased business for the store.

The company does a larger business in insecticides than it does in fertilizer. Most of it is sold outright to the farmer, or else to a contractor who puts it on the fields.

There is not much aerial application in the area because the farms are so small and a large variety of crops are grown.

Mr. Kearl says it's almost impossible to dust or spray a 20-acre field if it is surrounded by crops that are susceptible to the poison being used.

Weed killers are becoming good business for the company, Mr. Kearl says. Hand labor is getting difficult to find and is too high-priced, so farmers are turning more to chemical weed killers. Right now it's one of the items that Mr. Kearl is pushing heavily, he says, because it's a good investment for the farmer.

There is one thing that the manager of this type company must watch, Mr. Kearl says, and that is credit buying. Anytime the owner goes out and works with farmers closely, he will become good friends with many of them. And often it is these friends who abuse their credit.

Mr. Kearl has put his credit accounts on a business-like basis. If after 30 days time the farmer can't pay his bill, then Mr. Kearl tries to work out some plan with him. Quite often he will give the man more time, if the farmer has a good reputation and is trying to pay. Occasionally some suggestion on changing his plan of operations can be made which will bring the farmer extra income.

Mr. Kearl tries to be lenient, but he loses very little money to bad accounts. If a customer refuses to pay or just keeps stalling for time, he is likely to go to the small claims court with the case.

"We try to help our customers," he said, "but anyone can be too soft and easy at times. Usually I find that getting just a trifle firm about these matters will speed up collection. Also it seems to make people respect you more. The few customers we lose by it are usually farmers who cannot make a success of their business, anyway. It's better to refuse them now than going along with them every year letting the account get larger and larger, then finally losing it entirely."

The success of the company could possibly be divided into three important parts: Keeping a complete stock of up-to-the-minute merchandise, making a determined effort to sell as much of it as possible, and then collecting for everything sold. That last step is equally as important if not more so than the first two, according to Richard Kearl.

CHANGING PICTURE—Richard Kearl, L. C. Kearl & Sons Feed Co., Logan, Utah, has carefully observed the changing farm picture in his trade area, the result being that his store has become known as an agricultural chemical product headquarters. Fertilizers, insecticides and herbicide sales have been built into a profitable part of the business. Mr. Kearl is shown here beside a herbicide display in his store.

OVER THE COUNTER

(Continued from page 9)

can best be served. The dealer must discover ways of how he can sell and service the larger farmer and do these things better and more economically than the farmer can do it for himself. Otherwise he will not get this fertilizer business.

Perhaps the answer lies in ordering straight or pool carloads of materials for the larger farmers. The farmer can usually pick up directly from the car, usually on a spot cash basis. The dealer puts little labor into this kind of a deal and handles the transaction at a relatively small margin. An analysis probably would show that while the margin is small, it may be more profitable than handling the same product through the warehouse in smaller lots at the standard margin.

As a farmer becomes more specialized, he will need well informed dealers to advise and sell him.

A Good Example

A well known farm supply merchandising authority recently cited an example of how one phase of the farm market has undergone a drastic change. He said that a typical business which has been lost to the elevator trade, through lack of sales effort, is in the hybrid seed corn field. He believes that more than 50% of the hybrid seed corn used in Michigan, for example, is sold by farmer agents.

The seed corn is sold at the same price as elevator-retail store operators charge, so this is not a price problem, or even a service problem. It simply means that farmer agents asked for and got the seed corn orders and the elevator men didn't.

Farm supply operators located near large cities will need to diversify their merchandise lines in keeping with the need of smaller or part time farmers.

Facilities will need to be adjusted to allow for proper display and storage of lawn and garden supplies, such as fertilizer, herbicides, insecticides, disinfectants, tools, spray equipment, rental equipment and the dozens of other items needed by the small acreage operator.

Whether the dealer needs to serve the large farm or the twilight farmer, proper management in either case will result in profits and a rewarding occupation. In either case, the owner must make an honest and sincere evaluation of his situation and of his market, and then adjust operating practices and facilities to fit these needs.

The market for farm production supplies is not going to diminish but the patterns of distribution and type of products will change. The challenge to retailers is to fit into these patterns and product change picture and perform a valuable but profitable service.

Farm Demonstrations In New Mexico Gain in Popularity

STATE COLLEGE, N.M. — More and more farmers are joining the on-the-farm demonstration program of New Mexico A&M College. A report by the college discloses that nearly 43,000 lb. of fertilizer has been applied in the program this year.

Termed the "do-it-yourself" research program of the college, the demonstrations got underway following a $60,000 appropriation by the state legislature in 1953.

In 1954, they got rolling with about 180 fertilizer and variety demonstrations. Variety trials included corn, sorghum, alfalfa, chili, and some cotton. Fertilizer trials dealt mainly with cotton.

The number of plots has steadily increased as more and more farmers become interested in the program. In 1955, there were 224 demonstrations; 1956, 270; and this year 322. The 1957 plots take up 1,456 acres in 29 counties. The scope of the research has expanded to take care of weed and insect control.

"You can trace the progress of agriculture in various counties by looking at the number and kind of trials farmers want to put in," says Dr. P. J. Leyendecker, head of the college's department of agricultural services. "At first farmers are interested in varieties. Then in how to fertilize the varieties they have found best suited. Next it is weed and insect control."

Fertilizer to Be Topic Of Agricultural Tour

LOGAN, UTAH—Fertilizer application for more efficient farm production will be emphasized when the Union Pacific Agricultural car makes its annual tour next February.

Making the announcement were Wesley D. Soulier, U.P. agricultural agent, and Dr. Carl Frischknecht, director of Utah State University extension service.

Nearly 30,000 persons have viewed exhibits and listened to lectures on agricultural topics by USU experts aboard the special car since 1948 when the tours began.

Presenting information on the 1958 tour will be Dr. Paul D. Christensen, extension soil conservationist; Prof. Louis A. Jensen, extension agronomist, and James Thorne, director of the soil testing laboratory at USU.

The discussion topic selected for 1958 is vital because Utah farmers must achieve efficient production to make a profit, said Dr. Frischknecht.

"Fertilizer is one of the soil ingredients required for crop production," he explained. "Farmers need to know what their soils are deficient in. That means soils tests. Farmers not only need to know what ingredients, but what kind, what amount, when to add them, and how to add them."

CFA Issues Range Fertilization Booklet

SAN MARINO, CAL. — The Soil Improvement Committee of the California Fertilizer Assn. has issued a new booklet entitled "Range Fertilization." It is being sold at less than cost to fertilizer registrants in the western states for their distribution to livestock producers.

RINGING THE CASH REGISTER

$25 Sign Revolves

A rotating sign which cost only $25 is in use by one retailer who claims that it attracts considerable attention from passing motorists who otherwise would not notice his place of business which is some distance from the highway. A revolving drum sign is constructed of Masonite and is turned with a one-fourth horsepower motor. Specials for the day are posted on the six-sided drum.

MARKETING TRENDS NOTED

(Continued from page 9)

would kill tomato worms, while another farmer brought in three strange-looking insects in a fruit jar. He had found several of them on his cherry trees.

The owner without ever stopping from his work patiently and correctly answered each question, and the customers made their purchases. At least two-thirds of the people coming into the store had problems the girl clerks in the department could not have answered. They knew the store owner had spent many years in this kind of work and his reputation was known throughout the area.

He also had a clean, well-planned store where customers could make ordinary purchases without help. He spoke to everyone who entered the door, even if he was busy with someone else. And when a purchase was made, he had some pleasant remark to make and thanked them for the visit.

His place was quite a contrast to that of another dealer who was found sitting in a dirty store reading a magazine, while a woman customer was looking at some insecticide boxes on a shelf. She finally carried a box to him and asked if it was good for killing red ants, and how should it be used. He told her the stuff was all right, he thought, and the directions were on the box.

"A little man just hasn't got a chance, anymore," he later said. "The big places sell their merchandise cheaper than I can buy it."

It was learned afterwards that his creditors were ready to close the store, though at one time before he bought it, the place had been a prosperous business. So the management ability of the owner seems to be the biggest factor in whether the farm chemical store succeeds or fails. The successful owners and managers often are more industrious, intelligent and they have an eager, helpful attitude that impresses the customer.

Another thing quickly apparent in nearly all successful stores I visited is that the prosperous store is a clean store. The merchandise is attractively arranged. There are colorful posters on the walls, employees are friendly and active, and place is filled with many kinds of products. There is nothing that spells failure quite so quickly as half-empty shelves and a defeatist attitude by the owner. People shun failure, and one visit is all they will make to such a store.

Another way to expand business lies in promotional and field test work. A New Mexico dealer believed that winter fertilization would pay off, and finally talked several farmers into trying it on a small acreage. The results were successful, and he made a nice profit from the extra sales that were made the next autumn.

Advertising is a necessary ingredient in any success formula, though the owners are not in full agreement on which medium is most effective. Yet nearly every successful store had a carefully worked-out advertising plan. Many of them used newspapers, radio and TV and direct mail.

One very effective type of radio advertising is where the store broadcasts farm news or weather reports. A seed store dealer in Roswell, N.M., has a very interesting program of this kind, which he fills with news about local crops, insect infestations and local livestock sales. If insects start building up, he describes how they look, what it takes to kill them, then tells the listeners that the insecticides are being sold at his store. His store has become sort of an information center which farmers visit when in town.

Too many farm chemical dealers, it seems, have failed to keep abreast of the fast-changing field. They know little more about their products than the farmers who buy them. Yet the farmers are too busy with management problems to do all the reading and visiting necessary to become agricultural scientists.

Store owners should at least gain a working knowledge of most fertilizers and other chemicals they sell. One Arizona farmer was quite irritated because the poison he applied to his vegetable crop failed to kill the insects.

"The dealer who sold it to me said it was recommended," the vegetable grower pointed out. "After seeing it did no good, I went to the county agent who said the extension service didn't even recommend this poison. I had spent over $100, and lost part of the crop."

Obviously this man won't trade at that store anymore, and he will do enough talking to keep others away.

The trend toward higher analysis fertilizers and more potent insecticides provides an opportunity for dealers who want to do custom application on farm fields. Many of the materials being used to kill insects are dangerous to use, except under carefully supervised conditions. The dealer who has the equipment and know-how is really cleaning up profits in some areas.

In the Snake Valley of Idaho there is an entomologist who had spent 20 years in working with insects before going into business for himself. He had some jeep-powered applicators and had made a net profit of $9,000 in four months during 1956.

"Some of this stuff is dangerous for the amateur to handle," he explained, "so most farmers had rather let us do the job for them."

He warned, however, that a few mistakes on the contractor's part could ruin his business. This point was brought out clearly in the Lower Colorado River Valley of California where one crop duster contractor had outlasted 18 competitors. He guaranteed each job, and had trained his pilots to the point that each one was a good amateur entomologist. They knew each chemical used and exactly how to apply it. They also worked closely with the entomologists, soil scientists and other experts stationed in the area.

Another crop duster who allowed the spray to drift from an orchard to a nearby vegetable field had to close his business because of a lawsuit. He escaped from the suit with a small payment, but the farmers and orchardists had lost faith in him, so his business folded in a short time.

At the end of the trip, I tried to sit back in retrospect and determine just why some dealers fail when others succeed. The evidence from dozens of interviews seems to point up the need for more trained people inside the stores. Some owners who can afford it have persuaded college agricultural graduates to come into the business, either on a salary or by giving them an interest in the store.

"A college graduate is not always a good employee," said one dealer in California, "but if he has the character and enthusiasm every employer seeks in new employees, then college training will certainly make him worth more to you."

Naturally good management is needed. The successful farm store owner would have probably also been a success in operating a laundry, or drug store or on a farm. Much of it comes naturally, though experience and training are of tremendous help.

The farm chemical field is a growing field with plenty of opportunities for any one fitted for it. Farmers must use more fertilizers to get those higher yields, while the insects are certainly not giving up the fight. One entomologist said there was evidence that some insects were becoming immune to certain chemicals, and that other materials must be used.

Weed killers are also on the increase. First they were used on irrigation ditches and broader strips. Now as hand labor becomes scarcer each year, many farmers are using chemicals on field crops. Soil sterilants, fertilizer for pastures and other uses for farm chemicals are growing every year.

The wide-awake store owner can surely fit into this great new field in some capacity. Circumstances in some areas may cause a business to fail, but too many times it seems the owner himself has started it on the downgrade.

VEGETABLE INSECT CONTROL

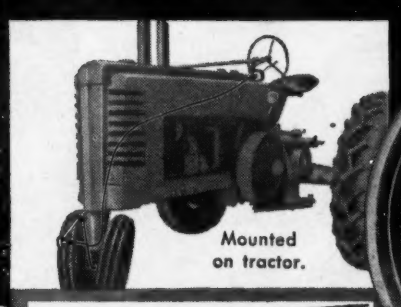
FORT COLLINS, COLO.—Revision of the bulletin, "Vegetable Insect Pests," has been announced by Colorado State University officials. The publication was updated to include recommendations on new pesticides and methods of applying them. The bulletin was revised by Gordon Mickle, extension entomologist, and Dr. L. B. Daniels, chief entomologist for the experiment station.

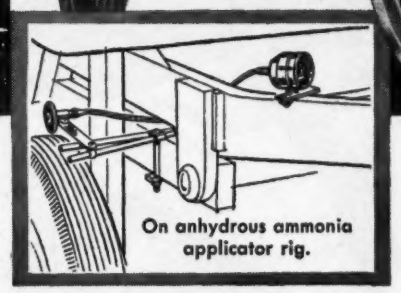
SAVE CROPS AND MATERIALS

with more uniform application of fertilizers, insecticides, weed killers, seeds!

INSTALL A STEWART-WARNER

FARM SPEEDOMETER





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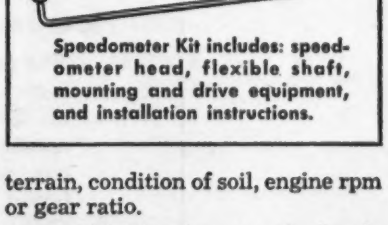

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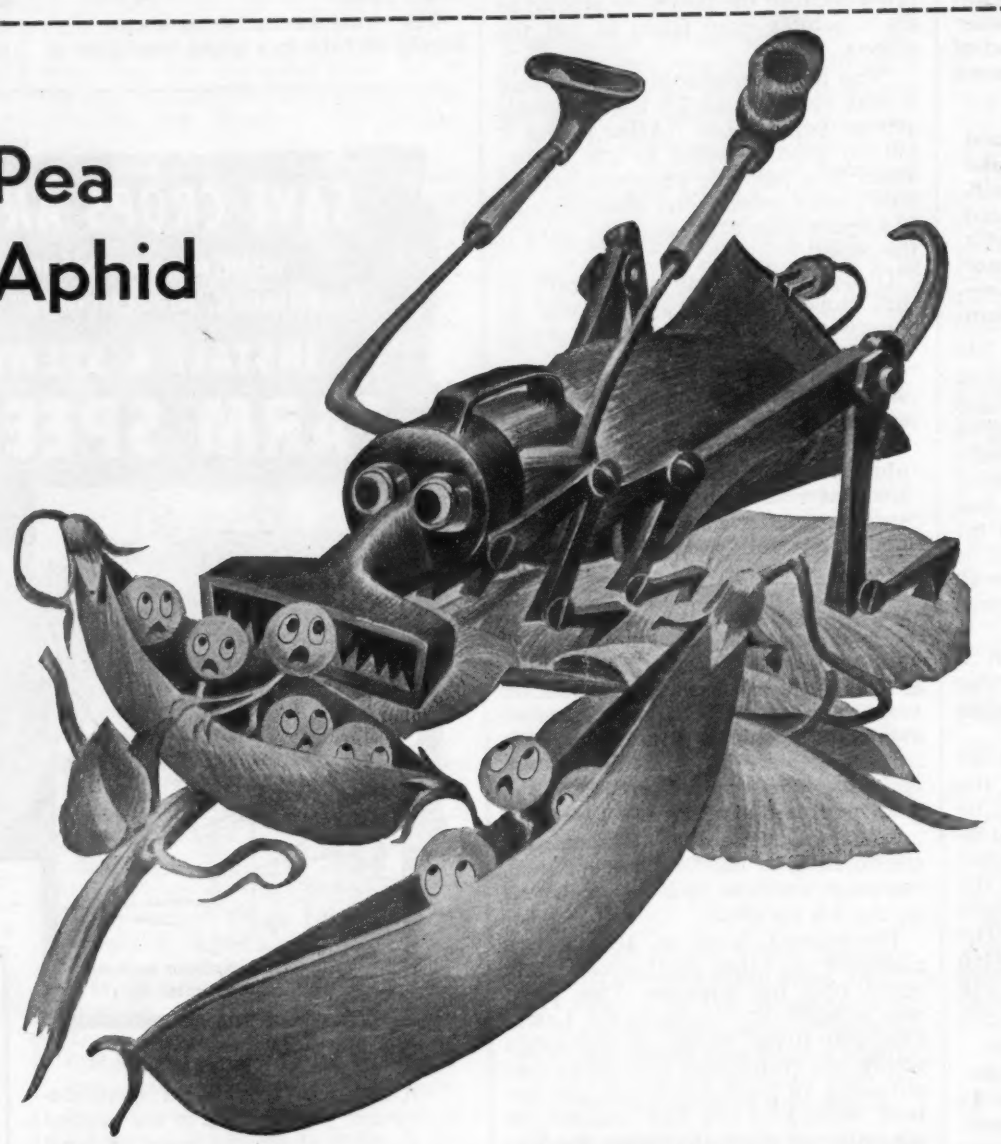
Type or print your ad below and mail with check or money order to CROPLIFE, P. O. Box 67, Minneapolis 1, Minn. Rate 15c per word, minimum charge $2.25, for regular set-solid ads. Count six words for signature. Add 20c for handling replies if ad is keyed care this publication. Rate for Situations Wanted ads 10c a word, $1.50 minimum. Display or "boxed" ads $10 per column inch per insertion. All Want Ads cash with order.

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

Pea Aphid



How to Identify

The adult aphid is a light-green, soft-bodied insect that may or may not have wings. Most of the adults are wingless, but when the numbers of aphids on a plant become numerous, winged ones appear and thus cause the insect to spread to new points.

Habits of Pea Aphid

Winged aphids fly into the pea fields early in the spring and produce living young which look like the wingless adult aphids. These young nymphs molt four times and begin reproducing as adults in from 7 to 14 days. Females produce around a half-dozen a day and keep this pace until as many as 100 have been born. Generations of females number from ten to twenty each year. Females lay eggs mostly on the leaves and stems of alfalfa and red clover. Eggs measure about 1/30th of an inch in length and are light green in color at first. Later, however, they become black and shiny. In colder climates, only the eggs survive the rigors of winter, giving rise to next season's populations. Aphids have many natural enemies, but in cases where the activities of these enemies are checked, multiplication of aphids is described as being "phenomenal."

Damage Done by Pea Aphid

This pest injures garden peas by sucking the sap from leaves, stems, blossoms and pods. Even a few aphids may kill small plants and stunt the growth of larger ones. The pest may also spread virus diseases, thus causing further damage to the crop. Even when small numbers of aphids attack a crop, they affect badly the quality of the peas, thus causing economic loss. Aphids, being small, are sometimes overlooked and the injury they do attributed to other insects such as lady beetles which in reality are feeding upon the aphids.

Control of Pea Aphids

Recommendations for control materials, timing, application practices, dosages, etc., may vary widely in different states and sections of the country. It is therefore difficult here to attempt to give specific suggestions as to what materials should be used or how they should be applied. Local authorities such as county agents, state experiment station entomologists, and manufacturers of the various pesticides should be consulted for specific information. Labels on pesticide containers carry full instructions on use and dosages. Users should always be urged to study labels carefully before applying any insecticide on food or feed crops to avoid the risk of illegal residues at harvest time.

Illustration of Pea Aphid furnished through courtesy of E. I. duPont de Nemours & Co., Inc., Wilmington, Del.

BIG THINGS are happening in Garfield, Utah...home of Western Phosphates, Inc., makers of Anchor Brand Fertilizers!

Over $5,000,000 were invested in the plant initially just four years ago. Today millions more are being spent there to answer the West's demand for greater output of quality Anchor fertilizers. Expansion and diversification are the rule at Garfield, not the exception.

By using Western Phosphate Fertilizers, your customers are assured of consistent quality ... results that are always in their favor.

ANCHOR BRAND TREBLE SUPERPHOSPHATE AMMONIATION GRADE

Ammoniation Grade is engineered for greater nitrogen absorption ... high free-acid content... high moisture content.

ANCHOR BRAND TREBLE SUPERPHOSPHATE PELLETED GRADE

Pelleted Grade gives high total, high available, high water-soluble phosphoric acid.

ANCHOR BRAND PHOSPHORIC ACID

Top quality. Suitable for soil or water application or for manufacturing complete fertilizers.

ANCHOR BRAND 11-48-0

All guaranteed nitrogen and phosphoric acid is water-soluble. Uniformly pelletized for even distribution. Meets high-phosphate requirements.

ANCHOR BRAND 16-20-0

Ideal for application where all nitrogen and phosphorus requirements can be applied at one time. Uniformly pelletized. All guaranteed nitrogen and phosphoric acid is water-soluble.

ANCHOR BRAND 13-39-0

Each pellet contains balanced amounts of nitrogen, phosphorus, and sulphur. Ideal for crops requiring the popular 1-to-3 ratio. All guaranteed nitrogen and phosphoric acid is water-soluble.

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Chemical Industry Sales Clinic to Feature Panel Discussions

NEW YORK — Chemical salesmen will be told "how to get that order" by three vice presidents of three chemical companies during the sixth annual Sales Clinic of the Salesmen's Association of the American Chemical Industry (SAACI). The all-day clinic is being held beginning at 10:00 a.m. Oct. 14, at the Hotel Roosevelt, New York.

Morning panelists on "getting orders" include E. E. Fogle, vice president of sales, Union Carbide Chemicals Co., division of Union Carbide Corp., New York; R. W. Hooker, senior vice president of Hooker Electrochemical Co., Niagara Falls, N.Y., and William H. McConnell, vice president of sales, Diamond Alkali Co., Cleveland.

Other morning session speakers and their subjects include Edward M. Krech, director of purchases of J. M. Huber Co., Brooklyn, "A Purchasing Agent Looks at Salesmen;" Paul Mills and Bernard Roberts of Sales Power, Inc., New York, "How to Communicate Your Ideas Effectively," and Elmer Schumacher, retired general manager of sales of the Polychemicals Department of E. I. du Pont de Nemours & Co., Wilmington, Del., "Selection and Training of Salesmen."

Gen. John E. Hull, president of the Manufacturing Chemists Assn., Washington, D.C., will be the luncheon speaker.

Three concurrent panel discussions are scheduled for the afternoon session. Panel No. 1 will cover "Personal Development and Evaluation of Salesmen;" Panel No. 2 is on "Measuring and Reporting Territory Potential," and "What Does a Salesman Expect from and Contribute to a Sales Meeting" is the subject of Panel No. 3.

Raymond C. Tower, sales manager, phosphate chemicals, Westvaco Mineral Products Division, Food Machinery and Chemical Corp., New York, is chairman of Panel No. 1. Serving as moderator is Joseph M. Trickett, coordinator, organization and management development, Food Machinery and Chemical Corp. Panel members include: Thomas H. Butler, technical representative, Shell Chemical Corp., Bishop Frank Smith, Jr., sales manager, chemical department, F. H. Ross & Co., and Theodore M. Welton, eastern sales manager, Oronite Chemical Co.

Chairman on Panel No. 2 is James E. Shand, assistant manager, chemical sales, Barrett Division, Allied Chemical & Dye Corp., New York. H. Kent Vanderhoef, sales vice president of Kay-Fries Chemicals, Inc., is moderator. Members of the panel are P. L. Richards, sales manager, alcohols and chemicals division, Enjay Co.; R. W. Eddy, assistant manager, fine chemicals division, Union Carbide Chemicals Corp.; Thomas Capstick, Jr., New York sales manager, Dixon Chemical & Research, Inc.

Panel No. 3 chairman is Harris C. Miller, district sales manager, Hooker Electrochemical Co. Robert A. Gopel, assistant general sales manager of American Aniline Products, a unit of Koppers Co., is moderator of the panel. Participants include: Carl W. Peterson, assistant district sales manager, Grasselli Chemicals Division, E. I. du Pont de Nemours & Co.; Edward W. Holback, sales representative, Merck & Co., and Raymond Nichols, sales representative, J. T. Henry Chemical Co.

Sam F. Teague, Jr., New York district sales manager, inorganic chemicals division of Monsanto Chemical Co., St. Louis, is chairman of the SAACI Sales Clinic for 1957. Other members of the committee include W. B. Beeson, Jr., New York district manager, Diamond Alkali Co., Cleveland; James E. Shand, assistant manager, chemical sales department, Barrett Division, Allied Chemical & Dye Corp., New York and Harris C. Miller, New York district manager, Hooker Electrochemical Co., Niagara Falls, N.Y.

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Good Crops Being Harvested in Texas

COLLEGE STATION, TEXAS—Good crops of cotton, grain sorghum and corn are being harvested in many parts of the state. Mostly the moisture conditions are good, though general rain in some areas would insure bumper yields of late-planted crops, as well as improve ranges for winter grazing.

The cotton harvest has moved into the northern part of the state. Irrigated cotton is equal to last year's yield, while dryland fields are much better. Practically every county in West Texas is predicting a large increase over 1956.

Insects continue to give trouble with severe infestations of leaf worms and cabbage loopers being reported in many sections. Farmers are bringing the leaf worms under control, but the loopers are killed only when given extra strong doses of poison. Farmers who started with light applications of poison have suffered light to medium damage.

The rice harvest is speeding up in the Gulf Coast area. In the Panhandle area vegetable yields were generally good, although a few farmers were caught with surpluses that had to be sold at a lower price. This was especially true in some cantaloupe areas where marketing facilities were not available.

Threat to California Farm Land Described

ASILOMAR, CAL.—The threat of population growth upon California's best farm land was described here recently by Karl J. Belser, planning director of Santa Clara County.

Addressing a conference of the Soil Conservation Society of America, Mr. Belser said that housing developments and shopping centers are overrunning the land.

He suggested control of the best land for agricultural use only, the development of soil bank programs and tax subsidies for lands used for agricultural purposes. In addition, it was suggested that maximum productivity be derived from land under cultivation through use of chemicals and soil conditioners.

ARIZONA BULLETIN

TUCSON—The University of Arizona has published a new bulletin entitled "Arizona Cotton Insects," Dr. Allan Telford, until recently a member of the university's entomology department. The publication names and describes desirable and undesirable insects and, in the latter case, tells the time and kind of injury they inflict on the cotton plant. More than 40 insects are illustrated in drawings by Lemac Hopkins, formerly of the University of Arizona staff. In most cases these drawings show the insect in both adult (moth) and larva (worm) stages as well as the cotton plants with damage typical of the particular insect. The bulletin also includes a tabular description of the insects.

Kimon T. Karabatsos

Kimon T. Karabatsos Joins Velsicol Chemical

CHICAGO — John F. Kirk, vice president, Velsicol Chemical Corp., has announced the appointment of Kimon T. Karabatsos as director of government relations.

For the past two years, Mr. Karabatsos was director of legislative and special services for the National Agricultural Chemicals Assn. Prior to joining the staff at NAC, he was administrative assistant to Rep. A. L. Miller of Nebraska, author of the Miller Pesticide Residue Amendment.

He received his college education at the University of Nebraska and the University of California where he majored in political science and journalism. In 1956 he was named to the President's Conference on Farm Safety and served on a special commission on industry mobilization in the event of enemy attack. He also served as legislation liaison officer for the 50th anniversary committee of the Association of Food and Drug Officials of the United States.

As director of government relations for Velsicol, Mr. Karabatsos will headquarter in Washington, D.C.

Fertilizer Employment Steady in California

SAN FRANCISCO — Employment in companies manufacturing agricultural fertilizers in California held relatively steady between the last quarter of 1955 and the final three months of 1956, reports the California State Department of Employment.

An average of 1,200 employees were at work making fertilizers during the October to December period of both years. A seasonal high of 1,500 was reached in April, followed by a slow decline for the remainder of the year, down to 1,200 in the mid-winter months of December and January.

In companies making insecticides and fungicides, employment for 1956 averaged 1,000 workers, climbing from 900 in January to 1,100 in December of the year. There are no comparable figures for any period previous to 1956, except for the summer months of 1955 when the average was also 1,000.

Manufacturing in all chemical industries, however, was at a new high in mid-1957. Wage and salary employment, as estimated by the Division of Labor Statistics and Research, reached 40,800 in July of this year, as compared with 39,900 last July, a gain of about 2.5% over the 12-month period. There has been almost a steady rise for the industry as a whole during all of 1957.

JOINS RADIO-TV STATION

TOPEKA, KANSAS—Charles Ross, area representative for Olin Mathieson Chemical Corp. for the past year, has been appointed associate farm director for WIBW and WIBW-TV, Topeka.

International Minerals Sales, Profit Show Gain in 1956-57

CHICAGO—International Minerals & Chemical Corp. Sept. 16 reported record sales and a 29% increase in net earnings after taxes for the fiscal year ended June 30, 1957.

International's annual report listed earnings for the year at $6,961,000 or $2.81 per share on the 2,337,287 common shares outstanding, compared with $5,402,000 or $2.14 per share a year ago. In addition, a gain after taxes of $713,000, or 31¢ per share, was realized from the sale of property in the year just ended.

Earnings before taxes for the fiscal year were $8,536,000, compared with the previous year's $6,395,000.

Sales, totaling $106,189,000, were up 10% over the $96,627,000 total for the 12 months ended June 30, 1956. Louis Ware, IMC president, said that sales have increased in each of the past 18 years and this year for the first time exceeded $100,000,000.

All product divisions operated profitably, he said. He noted that the Bonnie phosphate chemical plant in Florida was a contributor to this year's increased sales and improved earnings. Mr. Ware said the outlook for the coming year is "favorable for increasing sales and earnings."

Net earnings after taxes for the quarter ended June 30, 1957, were $2,717,000, or $1.12 per common share, compared with $2,371,000, or 97¢ per share for the corresponding quarter a year ago. Earnings before taxes, during the quarter, were $2,754,000, compared with the $2,607,000 for the 1956 period. Fourth quarter sales of $33,775,000 represented an 11% increase over the $30,423,000 in the corresponding 1956 quarter.

TVA Field Man

ST. PAUL—Richard Curley, a native of Craig, Neb., recently was named as a field representative by the Tennessee Valley Authority to work in cooperation with the soils department and Agricultural Extension Service at the University of Minnesota. Mr. Curley will work with the university and with TVA fertilizer distributors in educational work on improved fertilizer use and practices. His office is at the University's St. Paul campus and his area includes Wisconsin, North Dakota and South Dakota and Minnesota.

Industry Patents and Trademarks

2,805,926

Plant Growth Regulants. Patent issued Sept. 10 to Dwight L. Schoene, Woodbridge, and John W. Zukel, Hamden, Conn., assignors to U.S. Rubber Co., New York. A chemical selected from the group consisting of hydroxymethyl and aminomethyl derivatives of maleic hydrazide and their salts. An agricultural chemical composition comprising material selected from the group consisting of hydroxy methyl and aminomethyl derivatives of maleic hydrazide and their salts, said composition containinga surface-active wetting agent.

2,805,927

Selective Contact Herbicidal Compositions. Patent issued Sept. 10 to Philip C. Hamm, Webster Groves, Mo., assigner to Monsanto Chemical Co., St. Louis. The method of selectively killing crab grass growing in perennial lawn grass plots which comprises applying to said lawn grass plots a composition comprising from 0.5% to 10% by weight of thioacetamide and from 0.1% to 5% by weight of a surface active agent admixed with a fluent carrier, at the rate of 4 to 70 pounds of thioacetamide per acre.

Industry Trade Marks

.The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Climax Molybdenum, written, across an over-sized C; filed July 2, 1956; no claim made for "molybdenum" except in the association shown; for molybdenum containing chemicals—namely, technical molybdic oxide, calcium molybdate and molybdenum sulfide, by Climax Molybdenum Co., New York. First use June 24, 1955.

Ortho, in capital letters, filed April 11, 1956 for chemical compounds and preparations for use in agriculture, horticulture, livestock farming, household and industrial pest control, disinfection, deodorizing and corrosion control, including seed protectants; insecticides; fungicides; germicides; disinfectants; sanitizers; herbicides; animal repellents; spray adjuvants; wetting agents; spreaders; adhesives for use in insecticidal preparations; plant auxins; livestock and poultry sprays; deodorants and corrosion inhibitors, by California Spray-Chemical Corp., Richmond, Cal. First use in 1907.

American Cyanamid Co. Names Grasslands Expert

NEW YORK—The appointment of Francis A. Raymaley to a newly created position of grasslands specialist for American Cyanamid Co. has been announced by Frank S. Washburn, manager of the company's Phosphates and Nitrogen Division. His services will be available throughout the United States but his chief interests will be in all of the area north and east of Illinois and Kentucky, as well as in eastern Canada.

Mr. Raymaley comes to Cyanamid from Seabrook, N.J. where for the past several years he has been senior agricultural advisor to Seabrook Farms Co. He had 15 years of previous service with the New Jersey Agricultural Extension Service.

M. V. Bailey, technical director for the Phosphates and Nitrogen Division, said that Cyanamid's objective in establishing the new post was to "provide a highly trained specialist to cooperate with colleges, agricultural experiment stations, extension services and commercial organizations in the promotion of new methods of grassland management."

NEW COUNCIL OFFICE

WASHINGTON — The Washington office of the National Cotton Council has moved to new quarters in Room 502 of the Ring Bldg. at 1200 18th St. N.W. The council office has been located in the Marsh Bldg., 1832 M Street, N.W., since October, 1949.

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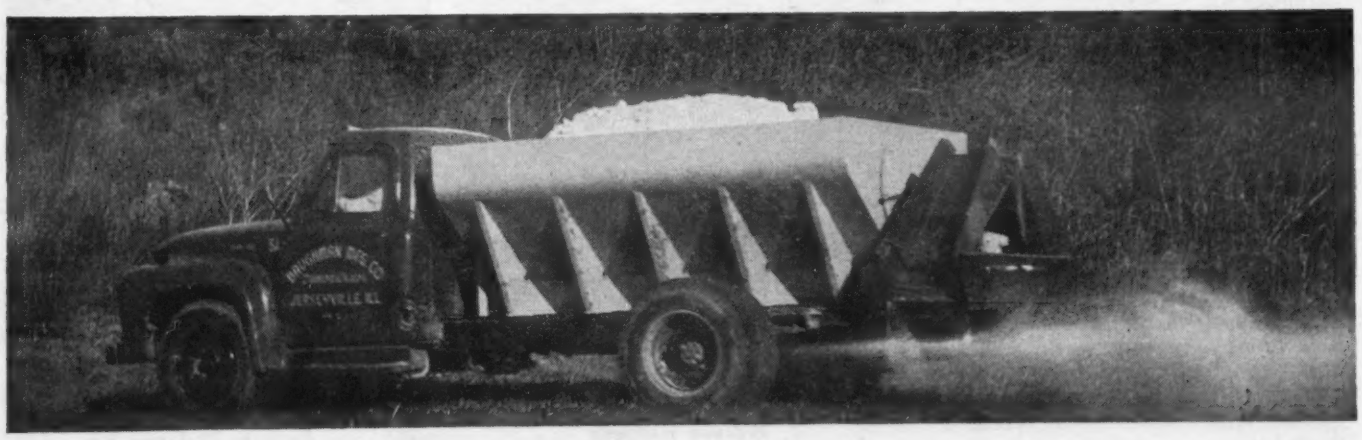

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CALIFORNIA WEED MEETINGS

(Continued from page 1)

districts," said Neil K. Holbrook, director of agriculture, California State Chamber of Commerce. "It was recommended that the Chamber of Commerce work towards the development of local coordination of weed control programs.

"Weeds are costly to many phases of our economy. Almost every Californian is affected either directly or indirectly by weed pests. Weeds steal water and soil nutrients, deface natural beauty, cause fires, shelter injurious insects and afflict allergic humans. Weeds deter our economy and compete with our production."

Dr. William Harvey, weed specialist from the University of California at Davis, told the Los Angeles meeting that "weeds cut across nearly all lines of our economy including homeowners, industrialists, fire departments, farmers, parks, flood control, water and irrigation systems, highway, public utilities of all kinds and many others. Because weeds are unglamorous and because they have been almost uncontrollable in the past, little has been done to lick the wayward weed. With new methods and chemicals, and coordination of efforts, we hope to focus more attention to subduing this costly problem."

At the Fresno symposium Dr. Floyd Ashton, botanist, department of botany, University of California, said, "Weeds cost in excess of $5 billion annually to the nation's economy." He pointed out that the magnitude of the weed research program is not consistent with the need. He called for increased fundamental and applied research work by both private and state institutions.

According to Capt. Robert M. Sevier, director, Weed Abatement Section, Los Angeles County Fire Department, "the Los Angeles County Fire Department spends about a quarter of a million dollars annually in its weed control program. Some of this cost is assessed to the individual property treated.

"The work of weed abatement in the Los Angeles County Fire Department is confined mostly to private properties and for fire prevention purposes only. We cannot use chemicals because of possible law suits, and burning is sometimes improbable owing to the possibility of air pollution. Consequently, weed control is primarily conducted through mechanical methods."

R. W. Underhill, agricultural chemical sales, the Dow Chemical Co., said at the Los Angeles meeting that "400,000 acre-feet of water per year are lost to weeds in southern California. The chemical industry spends tremendous amounts of money each year in herbicide research. The public needs education concerning the needs for weed control and particularly the need for regulation in this connection."

A strong plea for greater cooperation among persons and organizations now trying to control weeds was voiced at the Sacramento symposium. Approximately 75 persons attended.

Charles Hardy, Yolo County agricultural commissioner, in asking for greater cooperation, said there are 52 agricultural police in California—the agricultural commissioners of the various counties—and there probably are that many different policies for combatting weeds.

A 10-member panel, moderated by Walter B. Ball, chief of the California Department of Agriculture's Bureau of Rodent and Weed Control, gave varying views on the scope of the weed problem and the means of dealing with it.

Some of the blame for spreading weed seeds has been laid to farmers who transport livestock and feedstuffs into other counties.

Intensifying the problem on a statewide basis is the fact that some weeds considered harmful or noxious in one county are ignored in another. Sometimes this is because the particular weed problem has gotten out of hand and cannot be controlled.

In defense of the farmers, Atwood McKeehan, a Sutter County grower, said that farmers do not like weeds but they cannot afford the high cost of weed control.

There must be a balance, Mr. McKeehan said, between the cost of control and the extra profit derived from a weed-free field. He said he pays about $10 per acre for 700 acres and he believes this is about the maximum the average farmer can afford.

Robert T. Durbrow, executive secretary of the Irrigation Districts Association of California, said the only way to beat weeds is to put the problem on an economic basis, showing why it is to the farmers' advantage to keep weeds out of their fields.

"We need help," Mr. Durbrow said, "particularly in the line of education in combatting weeds."

J. R. Guttridge, president of the Amador-El Dorado-Sacramento Cattlemen's Assn., said an organization was needed which would concentrate the efforts of everyone, preferably on a local basis. He suggested setting up a program to recognize "the weed free man of the year" on both a local and a state level.

"Prevention is the most economical cure," said Elmer J. Merz, secretary of the California Association of Nurserymen. "If weeds can be prevented from going to seed and then the seedlings are controlled a couple of years, the problem would be practically eliminated."

Mr. Merz said nurserymen are most concerned with Bermuda grass, Johnson grass, nut grass, crabgrass and some others in varying degrees.

"We may win some battles, but the war is never over," he added.

The history of chemical weed control was traced for the group at the closing luncheon by Dr. Harvey.

These symposia are being attended by farmers, supervisors, agricultural commissioners, homeowners, farm bureau members, businessmen, highway maintenance engineers, public utility right-of-way engineers, landscapers, nurserymen, firemen, foresters, farm advisors, botanists and weed scientists.

A sixth weed policy meeting will be held in Ukiah Sept. 27.

Francis J. Sergeys Joins W. R. Grace & Co.

NEW YORK — Francis J. Sergeys has been appointed vice president in charge of development of W. R. Grace & Co.'s research and development division, according to an announcement by W. P. Gage, division president.

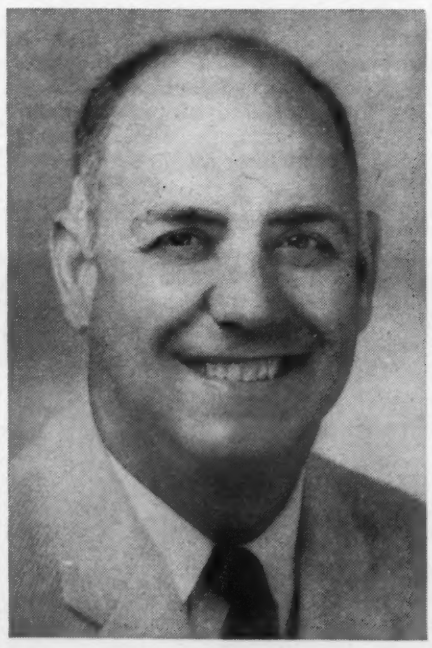
In his new post Mr. Sergeys will be responsible for the engineering and commercial research activities of the division. He will make his headquarters in New York. Prior to joining Grace, Mr. Sergeys was general manager of chemicals products research and development for Ethyl Corp. in Baton Rouge, La. Mr. Sergeys received a B.S. degree in chemical engineering from the University of Detroit in 1935 and a M.S. degree from the University of Michigan in 1940.

South Carolina Sales

CLEMSON, S.C.—South Carolina fertilizer sales during the first two months (July-August) of this fiscal year amounted to 24,664 tons, compared with 24,675 tons during a similar period a year earlier, the State Department of Fertilizer Inspection and Analysis has reported. Sales of mixed fertilizer totaled 14,617 tons in the 1957 period, compared with 13,951 tons for the 1956 period.

SOIL SAMPLES

FARGO, N.D. — During the fiscal year ended last June 30 the North Dakota Agricultural College tested 11,350 soil samples.



Harold Kingery

Jack F. Dulaney

Nitrogen Division Names Two New District Sales Managers

NEW YORK—Harold Kingery and Jack F. Dulaney have been appointed district sales managers by Nitrogen Division, Allied Chemical & Dye Corp.

Mr. Kingery was put in charge of the south-central district, with headquarters in Memphis. He will direct sales operations for both fertilizer manufacturing materials and direct application materials. Mr. Dulaney will supervise fertilizer manufacturing materials sales in the Atlanta district, with headquarters in that city.

Mr. Kingery came with Nitrogen Division in 1953 as a field sales representative. He was later promoted to the position he now leaves—sales supervisor for direct application materials in the South Point, Ohio, district. He is from Carrier Mills, Ill., and attended Southern Illinois University.

Mr. Dulaney joined Nitrogen Division in 1950 as a technical service representative. He comes to his new position from the company's Memphis office, where he was southwest sales supervisor. Born in Ruleville, Miss., Mr. Dulaney grew up in Greenville, Tenn. He is a graduate of West Point and also holds a degree in chemical engineering from the University of Tennessee.

California Group Expands Plans for Fertilizer Plant

SACRAMENTO—Directors of Valley Nitrogen Producers, Inc., a California corporation organized several months ago as a grower owned and operated producer of anhydrous ammonia, have decided to expand their operation to include manufacture of dry sulphate of ammonia and other mixed fertilizers containing nitrogen.

The products will be distributed to stockholders of the new corporation, which is headed by Carl H. Haas of Modesto. Roland F. Hill of Fresno is vice president and Victor I. Sandell of Fresno, secretary-treasurer.

Other directors are C. E. Sullivan of Yuba City, Lester S. Heringer, Clarksburg; Mal Carberry and Jack Hill, Fresno; Samuel Hamburg, Los Banos; H. L. Stanley, Stratford; Sherman Thomas, Madera, and Mervyn Voth, Wasco.

SOUTHERN MEETINGS

(Continued from page 1)

technic Institute, and Webster Pendergrass, dean, College of Agriculture, University of Tennessee.

Russell Coleman, NPFI executive vice president, will speak at the session on the Institute's expansion program.

The Soil Fertility Conference on Nov. 1 will open with a film entitled "The Bright Promise of The American Farm Market" which was produced by Fortune magazine.

A progress report on sulfur studies will be presented by H. V. Jordan, soil scientist, USDA and Mississippi State College; L. E. Ensminger, professor in soils, Alabama Polytechnic Institute; and J. A. Lutz, assistant professor of agronomy, Virginia Polytechnic Institute.

Highlights of the University of Georgia College of Agriculture soil fertility program will be discussed by Glenn W. Burton, chairman, agronomy division; H. F. Perkins, assistant research agronomist; J. B. Johnson, extension agronomist; J. W. Fanning, head, department of agricultural economics, and Ralph Wehunt and P. J. Bergeaux, associate extension agronomists.

A grade-ratio report will be given by J. W. Fitts, head, department of soils, North Carolina State College, and J. G. Fiskel, associate professor of soils, University of Florida, will present a trace elements report.

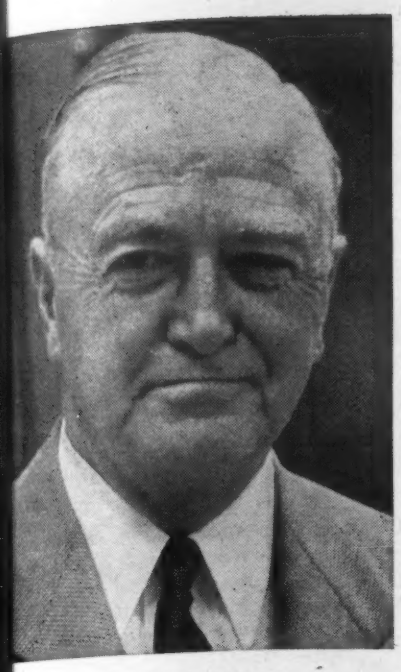
West Virginia Sales Show Little Change

CHARLESTON, W. VA. — Fertilizer sales in West Virginia the first half of 1957 totaled 65,386 tons, compared with 65,465 tons during a corresponding period a year earlier, according to J. T. Johnson, state commissioner of agriculture.

For the 1957 period sales of mixed goods totaled 58,252 tons, down slightly from 58,748 tons in the first half of 1956; sales of unmixed nitrogen amounted to 1,921 tons, down 14% from 2,246 tons; superphosphate sales were 4,801 tons, up 20% from 4,014 tons, and sales of other materials were 412 tons, compared with 457 tons for the 1956 period.

Mr. Johnson said that, based on the average retail price that farmers were paying around April 15, the total cash outlay for fertilizer in the first half of this year amounted to about $3.4 million, the same as during the first six months of 1956.

Leading grades of mixed goods in sales during the first half of this year were 5-10-10 with 29,095 tons, 3-12-6 with 5,379 tons, and 10-10-10 with 3,507 tons.



Donald Williams

OW APPOINTMENT—Donald Wil-ams, vice president and director of ales, has been appointed to the new- created position of director of orporate relations for the Dow hemical Co., it has been announced y Leland I. Doan, president. Mr. illiams will have the responsibility f developing and directing a new orporate relations department to be oncerned with all the company's rel-tionships with other firms, including hose in the chemical and allied in-ustries, Dow customers and potential ustomers and suppliers. He joined ow as an agricultural chemicals alesman in 1924.

esearch Grants Made or Gibberellin Studies

SAN FRANCISCO — Gibberellins ave become a central subject for esearch at the University of Cali-rnia. In one of the largest donations recent months by a chemical manu-acturing concern, Merck & Co., Inc., as made two grants totaling $18,500 the University of California to sup-rt two separate research projects giberellins.

The larger of these, for $16,000, ill be used on the Davis agricultural ampus for a study on the effects of ibberellins in problems relating to roduction and germination of vege-able crops and seeds and certain iochemical aspects of its function in lant cells. The study will include esearch on effects on production and arvesting of vine crops; studies of bsorption, translocation and fate of ibberellins in plants under varying onditions of nutrition, temperature, ght and humidity.

The other gift of $2,500 will support esearch on use of gibberellins with eeds and seedlings of floricultural rop. This study will be made on the os Angeles campus.

The California Planting Cotton eed Distributors made a grant of 7,836.19 for a cooperative research roject on fertilizers in cotton. This rganization gave another $7,800 for otton irrigation studies, both on the avis campus.

Other grants were made during uly totaling over $4,000. American hemical Paint Co. gave $2,500 for id in research with 3-amino-1,2,4-riazole as an herbicide, a project un-erway at Riverside. Monsanto Chem-al Co. gave $1,500 to aid in soil fer-ility research in Imperial and San oaquin valleys; and another $600 rant was made by American Cyan-mid Co. for turfgrass research pro-ram.

LIME VALUE

MANHATTAN, KANSAS—Over a 4-year period, liming the soil at the Columbus Experiment Field in south-astern Kansas has resulted in the ollowing per acre yield increases of rops in a legume rotation: Alfalfa, .1 tons; corn, 10.1 bu.; oats, 10.8 bu.; heat, 5.3 bu.; soybeans, 1.6 bu.

Gloomicides

After the family had increased to three it was decided to employ a girl as nursemaid.

"My husband is very particular whom we engage," said the mistress to the girl who applied for the job. "Are you faithful. Have you a kind and loving disposition? Will you . . ."

"Excuse me, madam," said the girl, "but am I to take care of the baby or your husband?"

★

Little Timmie got very tired of the long sermon in church one Sunday. After much squirming around he finally said in a loud whisper: "If we give him the money now, Ma, will he let us out?"

★

A grizzled old banker in a rural town was being interviewed on his successful career.

Interviewer: "How did you get started in the banking business?"

Old Banker: "'Twas simple. I put up a sign saying: Bank. A man came in and gave me one hundred dollars. Another came in and gave two hundred dollars. By that time my confidence reached such a point that I put in fifty dollars of my own money."

★

A really deluxe model automobile can keep you strapped without seat belts.

★

Smith handed his pay envelope to his wife every Friday. She gave him back four dollars a week spending money.

One evening he came home trembling with suppressed excitement. "Agnes! Agnes!" he cried as he burst through the front door. "What do you think? You won't believe it, but it's true—we've won fifty thousand dollars in a lottery. Fifty thousand dollars!"

Agnes paused in the middle of the stairs. "And where," she inquired icily, "did you get the money for the ticket?"

★

The rain is raining all around:
It rains on all the nations;
It rains a lot on many things—
But mostly on vacations.

★

After the rural wedding, the bride and groom climbed into his wagon and set out for their farm home. About a mile down the road, the horse stumbled. "That's one," shouted the groom.

They continued, and the horse stumbled again. "That's two," shouted the groom.

As they neared the farm, the horse stumbled again. "That's three," shouted the groom, and, seizing a gun from behind the seat, he put a bullet through the horse's brain.

The bride sat aghast; then, in no uncertain terms, told her new husband what she thought of his action. He sat quietly until she subsided, then said, "That's one!"

The couple lived happily for 55 years.

★

There's only one way, they say, to handle a woman, but the trouble is, nobody knows what it is.

★

His friends in the mountains say that Uncle Ben, a very cautious and frugal old man, put on his new suit of clothes one day and went down to have a look at Chattanooga.

As he was looking, a red-nosed stranger approached, asking, "Will you give me a quarter for a sandwich?"

Uncle Ben gave him a good looking-over.

"Lemme see the sandwich, first," he said.

Books on Pesticides

WEEDS—Second Edition (1955)
W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with reference to chemical methods of recent discovery $10.00

CHEMICAL BUSINESS HANDBOOK
Dr. John H. Perry

1,300 double column pages, the equivalent of several average books; 700 illustrations, by 124 contributors. Market research data section is 280 pages, business mathematics 200 pages, financial and accounting 142 pages, research and development 150 pages, sales and advertising 92 pages, twenty sections in all. The book deals with chemical management problems and is useful to technical men, engineers and executives, in the chemical and allied fields. Dr. Perry is editor of the Chemical Engineers Handbook, a companion publication $17.00

INSECT PESTS OF FARM, GARDEN and ORCHARD Fifth Edition (1956)
Leonard M. Peairs and Ralph H. Davidson

A standard text for 44 years. Includes insects affecting grasses, grains, cotton, legumes, vegetables, flowers, fruits, stored products, household goods and domestic animals. Contains a new chapter on insecticide formulations, spray mixtures, application equipment, etc. Material on forty new pest species added, including drastic changes in the illustration. 661 pages $8.50

DDT and NEWER PERSISTENT INSECTICIDES
T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatability of DDT with other insecticides, fungicides and additions are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations $8.50

APPLIED ENTOMOLOGY—Fifth Edition
H. T. Fernald and Harold H. Shepard

This text since 1921 has had an outstanding record of usefulness. The Fifth Edition preserves the general organization and coverage, with changes to improve the presentation and to incorporate new knowledge. Contains chapters on anatomy, physiology and development. The economic importance and control of insects are discussed in a general way with much attention to insecticides. The classification of insects is emphasized, with examples drawn from species conspicuous for being very harmful or decidedly beneficial. Specific control measure included for injurious forms. Last chapter considers other pest animals closely related to insects. 385 pages $7.00

DISEASES OF FIELD CROPS—Second Edition (1956)
James G. Dickson, Professor Plant Pathology, University of Wisconsin

Covers the diseases of cereals, grasses, legumes and fiber plants, which are the major food, feed and fiber sources throughout the world. More than 60 diseases incited by viruses, 40 by bacteria and 300 by fungi are listed and discussed in relation to field crop plants. Identification and information basic to its control, with emphasis on the problems of crop rotation, adaptation and the use of disease resistant varieties. This revised edition includes several new diseases, new illustrations and much recent research in the field $8.50

THE GARDENER'S BUG BOOK (1956)
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The Complete Handbook of Garden Pests and their control. Information, scientifically accurate but easy to read on 1,100 insects, mites and other animal pests that attack trees, shrubs, vines, lawns, flowers, fruits and vegetables in home gardens. Illustrations in full color. Control measures combine the latest in chemical developments with time-honored cultural measures. Helpful to all who serve the general public and to truck farmers and fruit gardeners. 579 pages, cloth bound $7.50

THE CHEMISTRY AND ACTION OF INSECTICIDES
Harold H. Shepard, Entomologist, U.S. Department of Agriculture, formerly Associate Professor of Insect Toxicology, Cornell University.

Treats the chemistry of insecticides, the history of their use, their commercial importance here and abroad, the nature of the major uses, the influence of environment on effectiveness. Materials are arranged according to their chemical relationships. Two chapters relating to organic compounds largely new as insecticides. Illustrative data in form of tables, and a convenient appendix of equivalents arranged for practical use in the field. 504 pages..... $8.00

WEED CONTROL
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INSECT, FUNGUS AND WEED CONTROL
Dr. E. R. de Ong

The information is grouped according to field of application rather than to chemical composition or nomenclature. Chapters on insecticide label, seed disinfectants, herbicides, forest insects and diseases, livestock insects, and the pests found in household and industry. Fumigation of warehouses, residual sprays and preservatives for fruits, vegetables and wood products are covered. An up-to-date guide on pest control with the needs of operators, agricultural and structural specialists carefully considered. Shippers and warehouse personnel will find the book useful..... $10.00

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Different Views of Future Expressed by NAC Speakers

Plenty of food for thought was handed out to the standing-room-only crowd during the recent three-day meeting of the National Agricultural Chemicals Assn. at Spring Lake, N.J. The program gave its attendants a report on what and whom influence farmers to purchase pesticides; a review of the work done by the association itself during the past year; and two interesting, if divergent, points of view concerning the business outlook for the immediate future.

The latter topic was handled in a rather contrasting manner by two succeeding speakers. Vergil D. Reed, vice president and economist of the J. Walter Thompson advertising agency, New York, presented a picture of a healthy, growing business environment for the industry, while Roswell Garst, operator of a hybrid corn firm in Iowa and dealer in pesticides, said that agriculture's production is years ahead of its market and that a tapering off of farm output should be encouraged for awhile.

Mr. Reed in developing his theme, pointed out that U.S. population is steadily increasing by some 8,064 a day. By 1975, he said, we will have passed the 222 million mark; an increase of 29.6% over our present population.

Mr. Garst, in viewing the same statistics, granted that although the future prospects for agricultural markets are excellent, the truth is that the present agricultural production potential is about 15 years ahead of the country's ability to consume the farm output. He said that agricultural production has grown at twice the rate that population has during the past decade or so, and it will require additional time for the situation to strike a more equitable balance.

Convincing data were presented by Mr. Reed in his presentation, to justify his optimism. He said that although the trend away from the farm will continue indefinitely, the productivity and thus the purchasing power of farmers will likewise increase. The farm market, he said, consists right now of approximately 4.8 million farms with total cash receipts of some $30 billion a year from farm marketings alone.

"Surprisingly enough, to most people, roughly half the total income of those living on farms comes from non-farm sources today," he told the conventioneers. "While we have heard a lot about the decline of farm income over the past few years, there has been amazing reticence about the fact that total incomes of those on farms have been and still are increasing."

The economist went on with some additional figures and other data to indicate that pessimism right now is unnecessary. Among the factors pointed out were these: that the total amount of land in farms has not declined during recent years despite the decrease in the number of farms (the remaining ones are simply larger, he said); that specialization, both geographically and by crops is increasing; and that farming is rapidly becoming a commercial undertaking, rather than merely a way of living.

The value of land is higher now, too, as is the value of farm machinery and equipment. Specialization by farms is also on the increase, he said, using as an example, the way the chicken-growing industry changed between 1950 and 1954. During this time, he said, the number of farms selling chickens declined by about 40%, but the average number of chickens sold per farm nearly trebled! Somewhat the same story was true in the case of cattle and calves, corn, and hogs.

Growth of this type reflects a dynamic and growing farm market with constantly increasing purchasing power, he said. Pesticides and fertilizers exercise both cause and effect influences, it was pointed out. "They increase productivity, and increased productivity further increases sales," he said.

Although Mr. Garst's talk was admittedly on the pessimistic side, his suggestions to the industry appeared to be well taken. His plea was, that since continual emphasis on greater production has led to surpluses which in turn threaten to depress markets, the industry might now turn its attention to market studies to help the farmer to sell more of what he produces.

Comments coming from NAC members, who listened in on the two talks, indicate a deep interest in what both men had to say. Not many, however, were venturing opinions as to which might be nearer the truth, although the meeting appeared to be one of more-than-average optimism for the future.

We think it is a healthy sign for the industry to hear various points of view of the type expressed by these two qualified observers.

Other speakers appearing on the program were likewise stimulating, but since Mr. Reed and Mr. Garst presented similar material from different viewpoints, interest in weighing their philosophies seemed to be greater than usual.

The DDT Trial

It looks like DDT and other pesticides are in for a rough going-over when the New York "trial" is heard this fall. It also appears that a considerable amount of loose talk and exaggeration is on the agenda from various persons who would like to see pesticides banned from public use.

Robert C. Murphy, retired curator of birds at the Museum of Natural History, made a rather surprising statement in a pre-trial deposition of his testimony the other day. He declared that the mass DDT aerial sprays follow the "same principle as releasing poison gas in a crowded restaurant because you know there is a murderer there." He was referring, of course, to the recent U.S. Department of Agriculture campaign against the gypsy moth on Long Island, and his testimony will become part of the information submitted at the forthcoming trial.

Mr. Murphy is one of a group of Long Island residents which is seeking a permanent injunction to prevent the USDA from repeating its spray program. He claims that the spray applied this summer had contaminated his soil, caused milk on his farm to contain 14 parts per million of DDT and harmed birds in the area. He also charged that the spray led to DDT-resistant strains of pests, and at the same time killed off "millions of dollars worth" of insects imported to control the moths biologically.

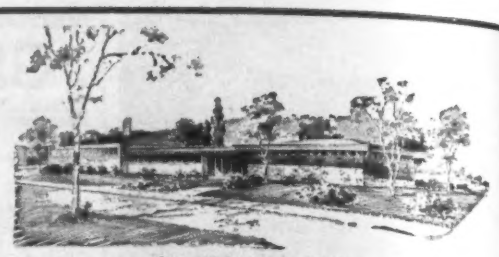
That there will be plenty of publicity against pesticides during the trial is obvious. Our hope is that the industry can counteract this by presenting to the public some good sound information.

Drouth Dries Up Business

Sales of pesticides in Massachusetts have dropped because of the drouth situation, a check of dealers reveals. With farmers concerned with salvaging what they can of their ruined crops, insect damage is not even being thought of now, dealers said. The only hope for crops now is a soaking rain.

The two-month drouth with its heat and dryness has affected insect life, too. There are fewer mosquitoes, and grasshoppers have left the state for greener pastures, it is reported.

Last year the drouth locale was in a different part of the country, but it is evident that no section is immune from such a threat. The trade suffers from such a situation, all the way from basic producer to consumer, but hope springs eternal that next year things will be better!



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MEETING MEMOS

Oct. 9—Annual Range Improvement Field Day, Southern Great Plains Field Station, Woodward, Okla.

Oct. 9—Conference on Precautionary Labeling, Park-Sheraton Hotel, New York City, Sponsored by the Manufacturing Chemists Assn.

Oct. 14-16—Trace Element Symposium, Ohio Agricultural Experiment Station, Wooster, Ohio.

Nov. 20-21—Ohio Pesticide Institute, Annual Winter Meeting, Neil House, Columbus, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Wooster, Ohio, Secretary.

Nov. 21—New Jersey Entomological Society, Fall Meeting, New Brunswick, N.J.

Nov. 25-26—Entomological Society of America, Eastern Branch Meeting, Commodore Hotel, New York, B. F. Driggers, New Jersey Agricultural Experiment Station, New Brunswick, N.J., Branch Secretary.

Dec. 4-6—Soil Science Society of Florida, Annual Meeting, Fertilizer Symposium on Dec. 5, University of Florida, Gainesville.

1958

Jan. 14-15—Georgia Plant Food Educational Society, Annual Meeting, University of Georgia, Athens, Ga., Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta, Ga., Secretary-Treasurer.

Jan. 20-21—Pest-O-Rama, sponsored by the Alabama Association for Control of Economic Pests, Coliseum, Montgomery, Ala., W. G. Eden, P.O. Box 626, Montgomery, Ala., Secretary-Treasurer.

EDITOR'S NOTE—The listings above are appearing in this column for the first time this week.

Sept. 24-25—New England Fertilizer Conference, Bald Peak, Colony Club, Melvin Village, N.H.

Sept. 25—South Carolina Plant Food Educational Society, Eighth Annual Convention, Clemson House, Clemson, S.C.

Oct. 2-4—Eleventh Annual Beltwide Cotton Mechanization Conference, Shreveport, La.

Oct. 3—New Jersey Fertilizer Conference, Rutgers University, New Brunswick, N.J.

Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.

Oct. 7-8—Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 9-10—Shell Nematology Workshop, Hotel Kingsway, 108 N. Kingshighway, St. Louis, Mo.

Oct. 9-11—Florida Fruit & Vegetable Assn., 14th Annual Convention, Hotel Fontainebleau, Miami Beach, Fla.

Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.

Oct. 15—Association of Official Agricultural Chemists, 71st Annual Meeting, Washington, D.C., Dr. William Horwitz, Box 540, Benjamin Franklin Station, Washington, D.C., secretary-treasurer.

Oct. 17—Conference on Chemical Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 18—Association of American Fertilizer Control Officials (States Relations Committee, 8 p.m. Oct. 17), Shoreham Hotel, Washington, D.C., B. D. Cloaninger, Box 392, Clemson, S.C., Secretary-Treasurer.

Oct. 21-22—Fertilizer Section, National Safety Congress, LaSalle Hotel, Chicago.

Oct. 29—Grassland Farming Conference, Rutgers University, New Brunswick, N.J.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Oct. 31—19th annual meeting, Middle West Soil Improvement Committee, Sherman Hotel, Chicago. Z. H. Beers, 228 N. LaSalle St., Chicago, executive secretary.

Oct. 31-Nov. 1—Second Annual Southern Fertilizer Conference and Second Annual Southern Soil Fertility Conference, Dinkler Plaza Hotel, Atlanta, Ga.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco, Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 13-15—National Aviation Trades Assn., Annual Convention, Hotel Adolphus, Dallas, Texas.

Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Collie, 2217 Tribune Tower, Chicago 11, Ill.

Nov. 18-20—Carolinas-Virginia Pesticide Formulators Assn., Carolina Hotel, Pinehurst, N.C. W. R. Peele, 516 S. Salisbury, Raleigh, N.C., secretary.

Nov. 18-22—American Society of Agronomy, Annual Meeting, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 25—Oklahoma Fertilizer Dealers Conference, Oklahoma State University, Stillwater, Okla.

Nov. 26—Oklahoma Soils and Crops Conference, Oklahoma State University, Stillwater, Okla.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 3-4—Iowa State College Fertilizer Manufacturer's Conference and Fertilizer Dealers' Short Course, Memorial Union, Iowa State College campus, Ames, Ia.

Dec. 5—Second Annual New Mexico Irrigation Exposition, Eastern New Mexico Fairgrounds, Roswell, N.M.; Al W. Woodburn and William Harr, c/o Southwest Public Service Co., Roswell, co-chairmen.

Dec. 8-12—Vegetable Growers Association of America convention, Jung Hotel, New Orleans, La.

Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.

Dec. 10-12—North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, Program Chairman.

Dec. 11-13—Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 21-22—North Carolina Pesticide School, College Union Bldg., North Carolina State College, Raleigh.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

Feb. 20-22—Nitrogen Conference, University of Minnesota, St. Paul. M. W. Mawhinney, Smith-Douglass Co., Albert Lea, Minn., Chairman.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

SOIL CONSERVATION MEETING

BROOKINGS, S. D.—The 20th anniversary of soil conservation work in South Dakota will be observed when the South Dakota Association of Soil Conservation Districts holds its 17th annual meeting at Pierre, Sept. 29-Oct. 1.

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- Keeping all industry alert to current and proposed government action.
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